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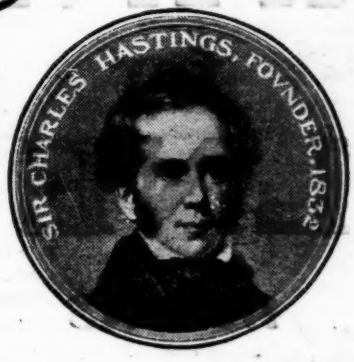

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A British Medical Association Lecture

ON

MINOR ENDOCRINE DISTURBANCES

*AND THEIR METABOLIC AND PSYCHICAL EFFECTS.**

BY

W. LANGDON BROWN, M.A., M.D.CANTAB., F.R.C.P.,

PHYSICIAN, ST. BARTHOLOMEW'S HOSPITAL.

THE last decade of the nineteenth century added greatly to our knowledge of the physiology of the ductless glands, while in 1902 Bayliss and Starling's discovery of secretin opened out the vista of a chemical control of the body, in which the nervous system merely acted as a trigger, firing off a series of reactions. This conception was elaborated until it bade fair to dethrone the nervous system from its supreme position, although Langley had already provided the antidote by his generalization that the action of adrenaline on any part was the same as that obtained by stimulating the sympathetic. But the far-reaching significance of that generalization was not yet appreciated. "The key to evolution lies in the continuous development of the nervous system," said Gaskell. Or, as Elliot Smith put it: "Man has developed and become the greatest of the primates because of his faithful dependence upon the development of the brain." Considering the struggle the central nervous system has had to obtain control, it is not likely that it would abdicate its suzerainty in favour of the more ancient dynasty of chemotropism.

We ordinarily think of the evolution of the nervous system as peacefully accomplished. A struggle for supremacy between two animals or between two species we recognize. But it would appear that a similar struggle accompanies the integration of the multicellular individual. Many apparently peaceful events in nature prove on closer analysis to involve a concealed struggle. Man is a gregarious animal, but he has not found it an easy task to adjust the desires of the individual to the needs of the community. Philosophers may lament this, theologians may attribute it to original sin, but it should lead the biologist to inquire whether the cells of which he is composed have always found it easy to sink their individuality in that of the organism. The thesis of a hostile symbiosis between the tissues of the body has been skilfully upheld by Morley Roberts. A strong central government is needed to keep order, and no high degree of differentiation is possible in the animal body without the control of a centralized nervous system, which has gradually acquired an increasing predominance. It is not too much to say that this control, though for the benefit of the body as a whole, may be resented by the individual tissues. Wilfred Trotter developed the argument of a hostility between nervous and somatic tissues, which is expressed in the way the former insulates itself.

Without defensive mechanisms no animal can survive in the struggle for existence, and no method of defence remains impenetrable, for, if it were, the species possessing it would multiply to the exclusion of others. As evolution proceeds the apparatus for defence comes under the control of a central nervous system. Some defensive mechanisms, such as nettle cells, never become so controlled, but are replaced by other methods as the nervous system evolves. Certain primitive motor apparatus, such as cilia, also never come under such control, though they persist even in the highest animals. In general terms, a central nervous system enables very rapid reactions to occur, and the need for such rapidity of response will first be experienced in the struggle for existence, when its advantage is at once manifest. G. H. Parker, in his book on *The Elementary Nervous System*, has brought new observations into relationship with previously known facts, and has impressed upon us afresh that a nervous system starts as a series of independent receptors and effectors in the deeper layers of the skin, the cells of which sink in deeper and deeper, until they become concentrated into a central nervous system. Between the receptor and effector an adjustor mechanism develops, which is the germ of the whole associative apparatus. In the vertebrates these internuncial adjustor neurons compose the chief mass of the central organs. It is not too fanciful to compare the origin of the nervous system to a group of settlers on the coast, who gradually invade the interior, first singly and then in an organized army, as in the nervous system of vertebrates which arises as a tubular invagination from the surface. Once established the invader assumes control over the indigenous inhabitants, fortifying itself as it goes and maintaining its protectorate by a system of rapid communication throughout the invaded areas. The biological and sociological parallel is remarkably complete.

A wise military occupation utilizes existing institutions, and the lowest level of the nervous system—that is, the autonomic or vegetative portion—enters into a close association with the older chemical methods of control. In my former lectures[1] [2] I have emphasized the fact that the endocrines which represent the specialization of these older chemical methods reveal their antiquity in the way they cling to vestigial structures. Indeed, with the exception of the pineal, these structures would appear to be homologous, and can all be traced to modified nephridia.[3] In the course of evolution structural alterations have made them useless for their primitive excretory function and they have taken on a new function of internal secretion. Circumstances alter function. Thus we have hand in hand (1) an increasing concentration of the government in the hands of the central nervous system; (2) an increasing concentration of endocrine functions in glands which can no longer discharge their primitive functions.

I have also recalled the fact that the autonomic, vegetative, or visceral nervous system consists of two great divisions—the sympathetic and the parasympathetic or extended vagus. The former is katabolic, converting potential energy into kinetic and facilitating outward manifestations of that energy, while the latter is anabolic, directing energy inwards, where it is stored up. When these two are distributed to the same structure their action is always antagonistic, and when one is stimulated the other is inhibited. Each of these great divisions co-operates with a group of endocrine glands—the sympathetic with the adrenals, thyroid, and pituitary; the parasympathetic with the glands of the digestive organs and annexes. This is explicable since the former group are largely defensive, while the latter are concerned with obtaining energy from the food. The sympathetic is defensive not only against the external foe, but also against internal invasion by bacteria. Fever is a defensive mechanism largely controlled by the sympathetic through the ductless glands associated with it. This explains why (1) patients with endocrine defects stand infections badly; (2) infections may lead to endocrine exhaustion.

The endocrines are important regulators of metabolism. If metabolism is quickened up, hyperglycaemia usually results. This excess of sugar in the blood is normally used either to supply energy to the muscles or as a source of heat for the febrile reaction. Glycosuria does not necessarily result, for there are two factors concerned in this—the amount of sugar in the blood and the threshold of the kidney. In fever this threshold is raised, so that the sugar poured into the blood by the thyroid, pituitary, and adrenals is prevented from escaping before it can be utilized. This is not only the case in fever, but whenever activity of the endocrine glands associated with the sympathetic is exaggerated. Thus in hyperthyroidism I have always found a higher percentage of sugar in the blood even if there is no glycosuria, and it is well known that the basal metabolism—that is, the metabolism per unit surface of the resting, fasting body—is increased.

OBESITY.

If metabolism is slowed down fat and mucinoid material is deposited. Obesity is due to alteration in the balance between anabolism and katabolism. The commonest cause is taking more food or less exercise than the body requires,

*A British Medical Association Lecture (with revisions) delivered before the South Essex Division of the Association at Southend-on-Sea on Friday, November 10th, 1922.

but this is not the whole story. Recent studies in basal metabolism show that it is lower in adults than in children, and in women than in men. It gradually diminishes with each decade. It is profoundly influenced by the endocrine glands, particularly the thyroid. A slowing down of basal metabolism means an increase of weight even though the intake of food is by no means excessive. It was clear during the food rationing of the war that a certain number of stout people did not lose weight as others did.

In *thyroid obesity* the increase in weight is not all due to fat. The heavy folds running from the nose to the cheeks, the bags under the eyes, and the supraclavicular pads are all very characteristic. The condition is really a minor degree of myxoedema, and presents a similar harsh dry skin with a malar flush. The mental lethargy is as marked as the physical.

In *pituitary obesity* the whole face is rounded, with a smooth, soft skin, while the colour is usually fresh or unduly high. I called it the "Dutch doll" type, and then found Fearnside had previously referred to it as the "pudding face." The amount of hair on the face and body is much reduced. Fat is specially deposited on the shoulders, breasts, hips, and thighs, giving the latter a "plus fours" appearance. The skin over the posterior borders of the upper arms and on the legs below the knees is a mottled red. The way this mottling stops abruptly just above the olecranon is very characteristic. These people bruise very easily and there is some polycythaemia. In women there is often amenorrhoea; but that is not the cause of the polycythaemia, as I found it in a typical case in a boy of 16. The mental outlook is often bright, active, and cheerful.

In *Dercum's disease* there are localized deposits of fat which are painful—they are particularly likely to occur on the posterior borders of the arms and the flexor aspects of the thighs. Here the mental condition is usually one of great depression, which is not merely due to the pain of the lumps, although this may be considerable.

In some cases of *pituitary tumour* there is both an insatiable appetite and great sleepiness; the patient awakes to eat, and having eaten falls asleep again. It is not easy to be sure what determines the bright alertness of one group of fat hypopituitarism and the profound somnolence of the other, but I suspect it depends on whether there is increased intracranial pressure or not. The fat boy in *Pickwick*—"Drat that boy, he's asleep again!"—is usually quoted as a classical example. A few years ago a very fat Jew, weighing 20 st., turned up at St. Bartholomew's Hospital at 11 p.m. complaining that he felt very sleepy. Fortunately he had a doctor's card with him, otherwise I cannot help thinking that a fat Jew complaining of sleepiness at 11 o'clock at night might have received more advice than treatment. It was a good thing he was admitted, for he had a syncopal attack soon afterwards. *X*-ray examination showed enlargement of his pituitary fossa. Under injections of 1/2 c.cm. of pituitrin three times a day he lost 2 st. in ten days and his general condition improved remarkably. Quite recently I advised two daily doses of 1/2 c.cm. in a similar case, with the result that 17½ lb. were lost in twelve days.

Thymic Obesity.—The thymus is an infantile organ; if it persists after it should have vanished we find it is antagonistic to the development of the gonads, and hence indirectly leads to the deposit of fat. The thymic type tends to have rather a long face, with clear skin and good features, marred by the precocious development of a double chin. It constitutes the lymphatic type of the older physicians, or status lymphaticus as we prefer to call it to-day. Such patients are liable to paroxysmal dyspnoea, the so-called thymic asthma, and they respond to infections badly.

Gonadal Obesity.—Recently I saw a girl of 22 who was very stout, and who presented some features of the pituitary and thymic type, and even some signs of thyroid deficiency. I noted that her upper lateral incisors were very small. She was surprised when I guessed that her periods began late. The guess was correct, for they did not start until she was 16½. One or both undeveloped upper lateral incisors are often associated with gonadal deficiency, and, her obesity showing signs of several endocrine glands being implicated, it appeared to me probable that this was due to some common factor rather than to disease of each of these glands, of which, indeed, there was no other evidence. Now the gonads stimulate the thyroid and pituitary while antagonizing the thymus, so that it seemed to me the probable starting point of the obesity was gonadal deficiency. Indeed, I think that pathological obesity in early life, showing mixed endocrine symptoms, is very often due to delay in gonadal development. It may subside quite rapidly when adolescence is complete. To hark back for a moment to the undeveloped lateral incisors. If you see a girl with more than the usual enlargement of the thyroid at puberty together with this condition of the teeth, you are, in my opinion, justified in regarding the enlargement as probably compensatory and not of evil import. Her periods may establish themselves with difficulty, but the enlargement of the thyroid is likely to subside when this has been done. The process may be hastened by small doses of thyroid extract. Curiously enough, this association between the teeth and gonads appears to be a crossed one. Thus with an undescended right testis it will be the left lateral incisor which is small, twisted, or displaced.

The Adrenals.

Having considered some of the effects of the endocrine glands on general metabolism, I will turn to some other results of minor disturbances of these glands, with some reference to the psychical aspects.

It is clearly recognized that the medulla of the adrenals really represents the post-ganglionic element of the sympathetic nervous system, which explains Langley's generalization, to which I have already referred. The chromaffin cell and the sympathetic cell migrated out of the central nervous system together, and the chromaffin elements were originally much more widely distributed. The cortex, on the other hand, represents a group of nephridia, and still arises from the Wolffian body. It is very significant that it has the same origin as the interstitial cells of the gonads. To this we may trace the extraordinary effect that cortical tumours or overgrowth have in producing premature sexual development. In whichever sex they occur they tend to virilism. We shall see that each of the different endocrines has its own tendency to tip the balance towards virilism or feminism. What the advantage may be of this close association of two structures of such widely different origin we cannot say, but the persistence of the association in all animals above the level of fishes suggests that it is of great importance. Apparently, if this association fails to occur in foetal life the brain remains at the fish stage, the neopallium does not develop, and an anencephalic monster results.

Since adrenaline can raise blood pressure and excite glycosuria, it is tempting to assume that these combined symptoms occurring in later life are due to overaction of the adrenal medulla, produced by nervous strain of an emotional sort. But proof of this is lacking. The classical picture of underaction of the adrenal medulla is seen in Addison's disease, and it is possible that adrenal exhaustion may play a part in war neuroses and other functional states characterized by myasthenia, vasomotor instability, and low blood pressure.

I should like to say a few words on the psychical aspect of adrenal disturbances. Fear is really a perversion of a defensive mechanism. It is the intensification of the instinctive process called into activity by danger. But just as we cannot conceive that all the primitive sensations of a lower animal have the affective intensity of pain as we experience it, so we must not regard the emotional response of an animal to danger as having the affect of what we mean by fear. To do so would be to fall into the common error, as Parker says, of interpreting the activities of the simpler animals as though they were miniature human beings. The much scantier associative mechanisms in the nervous system of lower animals precludes such an idea. An imaginative writer, A. C. Benson, says:

"It is strange to note the perpetual instinctive consciousness of danger which besets birds in the open; they must live in a tension of nervous watchfulness which would depress a human

being into melancholia. . . . Do we realize what it must be to live, as even sheltered birds do, in a quiet garden, with the fear of attack and death hanging over them from morning to night?"

The best answer to this anthropomorphic view is that the behaviour of birds gives no suggestion of their being depressed into melancholia. Doubtless when the appropriate motor response is prevented the lower animal can feel both pain and fear; but that all its sensations and emotions are thus coloured is most improbable when we consider the much simpler structure of its nervous system. It might be argued, on the other hand, that as sensations of fear at once arise when the inhibiting mechanism is in abeyance—as in night terrors, in the induction of anaesthesia, or in exhaustion states—fear must be a primitive emotion of great strength and universally present in lower forms of life. But I would urge that it is only in the stage when the associative mechanisms have been evolved, and before these have been controlled by the higher levels, that this is the case; or as Carpenter puts it, "Fear only became a mental stimulus at the time of, or after the evolution of, self-consciousness." The behaviour of savages supports this view. Fear—whether of evil spirits, of magic, of the dark—panic fear dominated primitive man, and whenever our resistance is lowered by disease, by shock, or by psychic conflict, we betray our ancestry. That strange primitive being which lurks in the unconscious mind of us all peeps out. Elaboration of ceremonial and ritual is the first step taken by primitive man to counteract this; all religions pass through the "God-fearing" stage. Then with the higher development of the mind, and the recognition of the reality principle, comes release from such obsessions of fear. In the disintegrative process of disease this higher control fails and phobias develop which cannot be effectually exorcised by the ritual of a compulsion neurosis.

The adrenal medulla from its activating effect on the sympathetic is a fighting gland. And as the adrenal cortex tends to virilism, the owner of a well developed pair of adrenals is pugnacious and masculine in type, with plenty of drive, not to say aggression. If the adrenals are in defect we see a weakening of all these characteristics, with a tendency for the vagus to get the upper hand, which may precipitate such things as asthma. If the adrenals are in excess we find a liability to anxiety neurosis, and to phobias of all kinds. In such an individual the dominant emotion is fear.

The Pituitary.

That overaction of the anterior lobe produces acromegaly in adults is well known. It is also generally recognized that some lesion of this lobe plays a large part in the osteitis deformans of later life. Overaction of this lobe in early life when general growth is still possible produces gigantism. Minor degrees of increased action of the anterior lobe results in a tall hairy man, long in tooth and big in jaw, with large broad hands. He often has a good intellect, with an imaginative force which can be controlled and brought to the service of his active brain; he is often musical—in short, a practical visionary. Unfortunately the effect of an overactive anterior lobe is not always so balanced as to produce such a happy result. Thus in the following case the amount of pituitary disturbance was not great, though the effect on character was disastrous.

A young man of 23 was brought to see me who had been very late in learning to walk and talk. He showed me two photographs of himself taken at the age of 4 or 5; one of these looked like a normal child, while the other looked degenerate. By the age of 6½ he had developed the habit of lying. He grew rapidly to the height of 6 ft. 5 in. His palatal arch was very high, and his knuckles were very large. He was a confirmed liar and thief, and was suspected of deliberate and wilful arson.

Gigantism due to overaction of the anterior lobe before the epiphyses are united may be followed by degeneration of the gland. The fossa becoming too small for the gland the patient is apt to develop moral and intellectual inferiority, to suffer from compulsions and obsessions, and to lack inhibitions. As Berman puts it, such individuals are "pathological liars with little or no initiative or conscience. . . . As children they lie and steal, have enuresis, have poor control over themselves and a low learning capacity." This patient showed all these points. But it is a little difficult to explain why even while the pituitary was actively stimulating growth there was a failure of the moral sense and intellect to develop. In the present state of our knowledge we can only say that there may have been a diversion of the pituitary action in one direction at the expense of others. Dr. Crichton Miller has suggested to me that it is rather due to failure on the part of other endocrine glands. In connexion with Berman's view that the posterior lobe is concerned with the affections, it is interesting to note that this youth had never shown the slightest affection for anyone. It had been suggested that he should be certified as of unsound mind. On that I wrote to his doctor as follows—and it happened to be just a fortnight before Ronald True's case:

"We are up against the difficulty which always arises between the medical and legal view of responsibility. I think that in spite of his plausible manner with strangers he has a criminal type of countenance; and I should never be surprised at his doing something to justify that harsh saying. But the law which gives the dog one free bite would certainly not allow him to be deprived of his liberty."

The sufferer from pituitary disturbances seems to compensate for his feeling of inferiority by craving for the limelight. The craving of the "fat boy in *Pickwick*" was to make people's "flesh creep."

The pars intermedia of the pituitary, which is developmentally part of the anterior lobe, is concerned with carbohydrate metabolism. If it overacts there is excess of sugar in the blood and sometimes frank glycosuria; if it underacts the blood sugar is low and carbohydrate tolerance is high—no doubt this plays a part in the obesity of hypopituitarism.

When the anterior lobe with the pars intermedia is in defect we have Fröhlich's syndrome—an abnormally fat patient, with little hair, smooth skin, and undeveloped sexually; in fact, an extreme degree of the type of pituitary obesity I have already described.

It has been said that the anterior lobe tends to produce virile characters, and the posterior lobe feminine characters. The flat-chested, long-toothed, large-jawed, clumsy-handed woman, fondly believed by the French caricaturists to be typically English, is certainly suggestive of an exaggerated anterior pituitary, and she is not remarkable for feminine characteristics. A little side issue of some interest occurs to me here: you are all familiar with the inseparable couple of women friends; one of the two usually adopts a somewhat masculine rôle, and I have been struck on several occasions to note the number of signs she presents of overactive anterior pituitary. Be that as it may, I am sure the pituitary plays some part in differentiating the secondary sexual characters.

We are on safer ground in asserting that the secretion of the posterior lobe stimulates plain muscle and is often found to be an excellent stimulant in a certain type of atonic constipation. I am convinced, too, that diabetes insipidus is generally due to defective action of the posterior lobe. Clinical and pathological evidence strongly supports this view, and injections of pituitrin will control polyuria. Apparently this is due to direct action on the kidney; but I must not stop to discuss this point.

Several recent observations have thrown considerable light on the influence of the pituitary on carbohydrate metabolism. Thus, Mackenzie Wallis[4] has found the blood sugar curve to be the same in pituitary glycosuria and the glycosuria of pregnancy; Dixon has shown that ovarian extract increases the secretion of pituitrin into the cerebrospinal fluid[5]; while J. H. Burn has found that pituitary extract will inhibit the action of insulin in reducing the blood sugar. Therefore, in the glycosuria of pregnancy the gonads apparently stimulate the pituitary, which in turn inhibits the pancreas.

The Thyroid.

The thyroid is essentially a feminine gland, and it is developed from the uterus of the paleostracan ancestor. Its enlargement at puberty, marriage, and pregnancy, and its tendency to involution at the menopause, all point that way. It has been called the gland of creation. Some time ago Crichton Miller asked if anyone had ever heard of a

myxoedematous artist. Tredgold replied by citing a cretin in Zürich in the eighteenth century who was an artist of some repute. But possibly he was really only an achondroplasic. Crichton Miller has returned to his point, and asks for cases of subthyroidic creators—be it of works of art or of children. It is, of course, true that a subthyroidic woman may have children after she has had thyroid treatment. Crichton Miller further maintains that child-bearing and artistic creation are mutually exclusive, the storehouse of creative energy being unable to cope with both kinds of creation; and I think that though we can find apparent exceptions to this rule, it is very rare for both kinds of creation to be possible simultaneously. I went so fully into the question of the factors in hyperthyroidism in a previous lecture that I need only recall them briefly now. Various toxic influences may excite a reaction in the thyroid gland; of these, tonsillar and intestinal sepsis seem to be the most important, though others may play a part. Thus in a recent case the hyperthyroidism was much ameliorated by removal of septic teeth, but septic tonsils were apparently responsible for an intermittent auricular fibrillation which came on soon after this, and which could not be controlled by quinidine. But more and more I am impressed with the influence of emotion in causing Graves's disease, which is readily comprehensible in view of the sympathetic innervation of the gland. This is particularly likely to happen if the distressing emotion has a matrimonial origin, while it naturally adds considerably to the difficulty in detecting the cause, as this is not usually a matter of advertisement. I had the opportunity of watching the case of an unmarried lady who was entrusted with the care of her niece between the ages of 4 and 17. The girl's parents were Anglo-Indians, and when she grew up they sent for her to go back to India. The aunt was greatly distressed; her whole emotional life appeared to centre round the girl, and within six weeks of her departure the aunt, who had reached an age which precluded her from having children of her own, developed marked Graves's disease. Fear is another emotion which has a marked influence in exciting hyperthyroidism, as was well shown during the air raids on London. The air raids were almost an "acid test" of race. An uncontrollable impulse to flight from London or into the tubes was almost diagnostic of Semitic origin. More self-controlled people, who nevertheless suffered acutely, repressed their impulses from the motor to the vegetative level, and received their reward in hyperthyroidism, amounting in some cases to Graves's disease. That stimulation of the thyroid should normally be followed by vigorous action is shown by the way it produces excess of sugar in the blood, even though there may be no glycosuria.

I have nothing fresh to say about minor degrees of hypothyroidism, but I should like to reiterate my belief in the importance of the disappearance of the outer half of the eyebrows as an indication of this condition and of the frequency with which "rheumatic" pains are experienced by sufferers from it. Once the suspicion of hypothyroidism is aroused its detection and treatment are not difficult. The following case presents points of more interest:

A boy, the only child of a widow, had an attack of subacute rheumatism. Following this he grew very fat and completely paraplegic. He had been in this state for a year when I saw him. His appearance suggested hypopituitarism, but though not quite 14 signs of puberty were well developed. A skiagram showed a normal pituitary fossa. There were no signs of organic nervous disease. I came to the conclusion that the rheumatic poison had damaged his thyroid gland, and that while pain had for a time made movement difficult, the existing paraplegia was functional. Separation from his mother, administration of thyroid, massage, and re-education exercises led to a complete cure with loss of his obesity.

The psychic effect of hypothyroidism is interesting because it is by no means uniform. The commonest result is a state which has been called "resigned melancholy," but sometimes the mental attitude is one of suspicion, which may result in delusions, and occasionally leads to acute mania. This is surprising in a disease usually characterized by lethargy. My experience is that mania in myxoedema should not deter us from giving thyroid extract.

THE PARATHYROIDS.

Most observers are now agreed that the parathyroids have separate functions from the thyroid. Their two recognized actions are (1) to destroy guanidine, a purin body which otherwise accumulates in the muscles, where it is believed to cause tetany; (2) to increase the ionizable calcium content of the blood. The first effect has been recently used by Vines to estimate the activity of preparations claimed to contain parathyroid secretion, and the second has been proved by the same observer by direct estimation of the calcium in the blood. Applying these facts to clinical observation Grove and Vines[2] found in the case of lesions which could be watched, such as a varicose ulcer on the leg, that calcium was an important factor in their healing, that parathyroid extract was capable of influencing calcium metabolism, raising a deficiency in it to normal, and that with a normal calcium content healing speedily occurred. They then applied this method to internal lesions such as gastric or duodenal ulcer, with similar results. They believe that calcium deficiency is an index of the absorption of a toxin, and that in all the various diseases improved by parathyroid therapy the common factor is sepsis. It is suggested that the benefit is derived from a stimulation of the leucocytes, since the polymorph count rises, probably from an indirect effect of calcium on the blood plasma.

THE THYMUS.

As already stated, the activity of this gland is normally limited to the infantile period. It appears to act as a brake on the development of sexual maturity, presumably in the interests of somatic development. Since no internal secretion has been obtained from the thymus it is not easy to see at present how it antagonizes the gonads. Possibly this is achieved through its influence on the structure of the blood, for the appearance of the adult blood picture and the disappearance of the thymus are usually simultaneous. While the thymus exists the characteristic blood reaction is lymphocytosis, and it is only during this period that we meet with the condition known as pseudo-leukaemia, or "splenic anaemia of children," which is probably merely the reaction of infantile blood to various severe toxaemias. In status lymphaticus the enlargement of the thymus is simply a part of a general adenoid enlargement. It may be that this is a sign of an abnormal sensitivity to foreign proteins, which is a characteristic of those whose vagus response is exaggerated. This would account for the liability to dyspnoea, syncope, and anaphylactic shock associated with status lymphaticus. When the adult blood picture is reached this lymphocytic reaction is replaced by a leucopenia in anaphylactic shock.

THE PANCREAS.

Both the external and internal secretions of this gland are anabolic in their effect. The external one prepares all the foodstuffs for absorption; the internal one is now proved to lead to the utilization of sugar by the tissues. It is the special merit of Banting's work that he has been able to isolate the active principle of this long-suspected and long-sought-for internal secretion. It would appear to act by changing glucose into another form, γ glucose, in which it can be used. When it is absent or diminished, more or less of the sugar in the blood remains in a non-assimilable form and is bound sooner or later to be excreted into the urine. How soon it appears will depend on the response of the kidney, which tends to raise its threshold when there is excess of sugar in the blood, thus allowing a longer time for the diminished pancreatic internal secretion to act. This internal secretion, insulin, is not confined to the pancreas. It is probably widely spread, and certainly appears to be present in yeast at a particular phase of its life cycle (Winter and Smith). This is not the place to discuss the therapeutic use of insulin, but it is already clear that it lowers blood sugar, diminishes ketosis, and raises the respiratory quotient. All these are different aspects of the same action. By converting glucose into a form in which it can be used it naturally prevents its accumulation in the blood. It is of great

interest to observe that the avidity of the tissues for this form of glucose is so pronounced that an overdose of insulin leaves insufficient sugar in the blood for immediate needs. Too little blood sugar is more disastrous than too much; the former immediately produces acute symptoms; the latter is compatible with fair health for years. The effect of insulin on ketosis is very marked, for even on a rigid protein and fat diet the diabetic may show no reaction for diacetic acid in the urine—another evidence of the oxidizing power of γ glucose. The rise in the respiratory quotient inevitably follows the more complete utilization of carbohydrate.

I may remark that while the discovery of insulin completely proves that the cell-islets of the pancreas form an internal secretion which promotes the assimilation of sugar, it does not prove that all diabetes is due to a pancreatic lesion. The fact that pituitary extract can antagonize insulin provides new support for the view that diabetes may be due to a more profound and subtle disturbance of metabolism than a lesion of one gland.

Swale Vincent has reminded us that organotherapy is often employed without any rational sanction. As he says, it would be difficult to mention a drug which is clearly and beyond doubt of value in the treatment of disease and yet which possesses no known pharmaco-dynamical effects. Yet many of the extracts in common use have not been shown to have any such action. Even some of those which do, cannot be satisfactorily used in substitution therapy. The early triumphs of thyroid medication tended to blind us to the difficulties surrounding the use of other glandular extracts in therapeutics. Yet the thyroid is exceptional in containing a definite reservoir of secretion and, by virtue of its duct originally opening into the alimentary canal, retaining the power of having its secretion absorbed by that route. It is perhaps fortunate that many of the preparations in use are inert, for otherwise damage might be done. Thus the injection of secretin by liberating an active pancreatic secretion may produce digestion of the intestine. It is just as well, therefore, that organotherapy lags behind endocrinology. But I feel sure that Swale Vincent, while rightly demanding more exact experimental methods in organotherapy, reaches too agnostic a position with regard to endocrinology. Here the careful study and comparison of abnormal types by clinical methods may be of considerable help. To that study I hope some of the foregoing observations may contribute.

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SOME HINTS FROM THE OLD PHYSICIANS.

AN ADDRESS DELIVERED BEFORE THE BRADFORD MEDICO-CHIRURGICAL SOCIETY, OCTOBER 17TH, 1923,

BY

JAMES ALEXANDER LINDSAY, M.A., M.D., F.R.C.P.,
EMERITUS PROFESSOR OF MEDICINE IN THE QUEEN'S UNIVERSITY OF BELFAST.

HISTORY rightly occupies an important place in general education. It is not only a subject of great intrinsic interest but it is full of instruction for us. We cannot understand the present without some knowledge of the past out of which it has been evolved. History fosters judgement, chastens opinion, gives warnings, encourages research. This is true of history in general, and for us the history of medicine has special claims. We owe it to our profession to know something of the long and toilsome path which medical science has travelled before attaining its present position of influence and authority. We ought to know something of its pioneers, its seers, its heroes, and its martyrs. We can derive encouragement from their labours, sacrifices, and successes, warning from their mistakes and failures. We shall read with chastened feelings of false theories and imaginary cures which long held the field, and we shall learn to be more careful in appraising every new medical doctrine and every new method of treatment which to-day makes its appeal to us. The past has much to teach us, positively and negatively. We shall learn that time is the great test and experience the only safe guide. The history of medicine is to-day coming into its own. There is now an International Society for the Study of the History of Medicine, which has already held three successful congresses. Chairs and lectureships in the history of medicine have been provided in various universities. The FitzPatrick Lectures at the Royal College of Physicians have produced many valuable monographs, and the time is near when some knowledge of the history of medicine will become a necessary portion of the medical curriculum.

Scientific medicine begins with the Greeks. They were the first to study medicine as a lay subject, to free it from superstition and priestly authority, to practise bedside observation on scientific lines, and to develop a sound therapeutic. Whether they owed much or little to Egypt, Babylonia, or Crete, we have no certain information. When the darkness which enshrouds early Greek history lifts, we find a cult of the God of Healing—Asclepios—and a society of physicians—the Asclepiadae. The chief centres of this cult were at Trikka in Thessaly, in the island of Cos, at Pergamos in Ionia, and at Epidauros in the Peloponnese. The temples of Asclepios were practically hospitals and sanatoriums. They were usually placed in localities favoured with climatic and hygienic advantages, and often in the neighbourhood of mineral springs. The chief means of cure were physical exercises, baths, inunctions, purgatives, emetics, dietetic regulations, rest, and various modes of suggestion. It is instructive to note that in the very earliest times the Greek physicians understood and stressed suggestion. They knew well the great influence of mind upon body. In the temples of Asclepios one of the favourite methods of treatment was the temple sleep. In the silence of the night hours the physician, personating the God of Healing, visited his patients, soothed their fears, encouraged the hope of recovery, and no doubt favourably influenced the course of disease. Whether he taught them to say "I am feeling better and better every day" I am unable to affirm; history is silent on the subject, but if the formula was different, the method and design were the same. M. Coué would have felt quite at home in a temple of Asclepios, and I am not sure that Freud, Jung, Adler, and their numerous followers might not have found some of their views and methods anticipated by the disciples of Asclepios. The wheel has come full circle, and modern psychotherapy is reverting to the practice of Cos and Epidauros.

Hippocrates is the first great figure in the history of medicine. He belonged to the great age of Greece, the age which saw such astonishing achievements in literature and in art. Born in the island of Cos in the year 460 B.C. of a family of Asclepiads, he travelled widely, acquired all the medical knowledge of his time, practised in various cities of Greece, and achieved great renown in his own time, and even greater fame in succeeding ages. Galen called him "the divine," and he is justly regarded as the Father of Medicine. His works cover the whole field of medicine, surgery, and obstetrics, and are an encyclopaedia of the best knowledge of his day. His *Aphorisms* is probably the only book of ancient medicine which is still frequently read. Much of it is obsolete, but there is hardly a page which does not contain evidence of shrewd observation and sound wisdom.

Hippocrates was the first great clinical physician and the founder of the bedside method. His anatomy was weak, his physiology weaker, and his pathology weakest, but he was an observer of the first order, and he had a sane and profound intellect. He studied disease objectively, without theory, and recorded his successes and his failures with equal impartiality. He relied upon experience. Hippocrates achieved three great objects: he freed medicine from superstition; he systematized and expanded the best medical knowledge of his day; and he gave physicians the highest ethical inspiration which medicine can possess. The famous Hippocratic oath is an ideal of medical practice which can never become obsolete. Hippocrates left descriptions of the epidemic fevers of Greece, phthisis, epilepsy, puerperal

septicaemia, epidemic parotitis, and many other diseases—descriptions to which modern medicine has little to add. His account of wounds, fractures, and dislocations is wonderfully accurate. He was the first to compile regular clinical records. His examination of the patient included the facial expression, the pulse, the temperature (estimated by laying on of hands), the respiration, the sputum, the urine, localized pains, the movements of the body. He emphasized the importance of inspection. He noted the ominous significance of picking at the bedclothes. He described that grave aspect of disease which we still call the "facies Hippocratica," and that important sign which we know as Hippocratic succussion. He also described a sound in the chest which he compared to "a creak like that of leather"—probably pleural or pericardial friction. He recognized healing by first intention. He attached great weight to prognosis and wrote a special work on the subject.

In his therapeutic Hippocrates relied much upon the *vis medicatrix naturae*. He used few drugs and those sparingly. His favourite methods were fresh air, rest, careful diet, baths, purgation, soothing draughts, massage. Is it too much to say that to-day we are witnessing a turn of the tide towards the simple and gentle Hippocratic therapy, as contrasted with the violent practice of the Middle Ages and later? Hippocrates did not try to expel disease by force—rather to assist Nature in her efforts after elimination. "Natural powers are the healers of disease" is one of his maxims. He advised that wounds should be irrigated with water of the greatest purity, or with boiled water—a foreshadowing of the aseptic practice of to-day. He insisted that the hands and the nails of the operator should be carefully cleansed. His successors too often forgot or ignored these wise directions.

Hippocrates had sound views on public health. He wrote a book upon "airs, waters, and places," which is the first book, so far as we know, on the subject of medical geography, climatology, and anthropology—subjects to which he attached the greatest importance. One of the "aphorisms" affirms that "the body can only be understood as a whole"—a hint against the possible dangers of excessive specialism.

Hippocrates has left a message to all of us to-day—the importance of careful bedside observation; the need to study medicine in the light of experience and not to be hidebound by theory; the wisdom of helping rather than coercing the healing powers of Nature; the necessity for a high ethical ideal for the healing art.

Plato was much interested in medicine, but he was not a practising physician, and he had more regard to the soul than to the body. Perhaps the chief lesson which we can derive from his works is the influence of mind upon body—a doctrine much inculcated upon us to-day. He puts this doctrine in a somewhat extreme form in the following passage in the *Charmides:*

> "I dare say you have heard eminent physicians say to a patient who comes to them with bad eyes that they cannot cure the eyes by themselves, but if his eyes are to be cured, the head must be treated, and then again they say that to think of curing the head alone, and not the rest of the body is the height of folly . . . and, therefore, if the head and the body are to be well, you must begin by curing the soul."

I should like to submit this passage to a jury composed of equal numbers of ophthalmic surgeons and psycho-analysts.

Aristotle was the son of an eminent physician and was much interested in medicine. His work on the subject has unfortunately been lost, but he gave medicine the foundations of zoology, comparative anatomy, and embryology. He was the first great biologist. His *Historia Animalium* is a marvellous collection of facts relating to the structure, functions, and life-history of nearly all the animals of his country and time. Recent work has shown how accurate was his observation.

Alexandrian medicine, in which the two leading names are those of Herophilus and Erasistratus, made some advances in medicine, especially in anatomy. Herophilus was on the track of the correct view of the circulation of blood, but failed to solve a problem which had to wait many centuries for Harvey. The school of Alexandria developed a tendency to polypharmacy; many remedies imported from the East came into use and stimulated a method of practice which had baneful results in the Middle Ages. Toxicology occupied a prominent place in this school and probably owed its inspiration to the East. It had a somewhat sinister aspect. Mithridates, the famous King of Pontus, who probably derived his information from Alexandria, is said to have immunized himself against poisoning by means of the blood of ducks fed on poisonous materials, a curious anticipation of some modern doctrines.

Celsus, a Roman gentleman in the reign of Tiberius Caesar, left an elaborate work, *De Medicinâ*, which had considerable influence upon medical thought and practice. Of his aphorisms the following may be quoted:

> It is not to be thought that he should know the remedies of disease who does not know their original causes.
>
> We ought not to be ignorant that the same remedies are not good for all.
>
> Laziness slackens and dulls the body, but labour strengthens and makes it firm. The former hastens old age; the latter prolongs youth.
>
> Idleness and luxury first corrupted men's bodies in Greece, and afterwards afflicted them in Rome.

Galen is the greatest name in ancient medicine after Hippocrates. A Greek and a native of Pergamos in Asia Minor, he practised at Rome in the second century of our era. A man of boundless energy and industry, of eagerness and curiosity in the pursuit of knowledge, a keen observer, he made large advances in osteology, myology, and the anatomy of the nervous system. His physiology was vitiated by the doctrine of vital spirits, and his pathology by the doctrine of the four humours. His therapeutic was largely governed by the theory that disease is something which must be expelled from the body—a *materia peccans* which must be got rid of. Hence his emphasis upon methods of elimination. Another of his theories was that disease must be combated by remedies exercising counteracting influences—for example, cold by warmth, plethora by deprivation—the doctrine of *contraria contrariis*. He attached much weight to housing, the influence of air and light, gymnastics, dietetics, cold and warmth, massage, baths. He advocated change of climate in certain cases. As forms of exercise he mentions rowing, digging, mowing, throwing the javelin, running, jumping, hunting, splitting wood, carrying burdens. He advised exercises for the cure of adiposity. He advised baths in fevers. He had sound views upon diet. He employed venesection, leeches, laxatives, emetics, diuretics, and diaphoretics.

Galen's influence on medicine was almost omnipotent for a thousand years. His views on anatomy and physiology paralysed research until overthrown by Vesalius. His doctrine that disease is something to be expelled from the body by blood-letting, purgation, diaphoresis, and other eliminative measures had a long career and still has weight in medical practice. It lies behind many familiar therapeutic methods. It is the foundation for some modern medical theories. "Toxaemia" is almost as blessed a word in medicine as was "Mesopotamia" in the story of the old lady who found comfort and satisfaction in that geographical expression. It is worthy of reflection how far this Galenic doctrine is, or is not, too preponderant with us. Is it really true that the colon is a human sewer which Nature has unhappily preserved as part of our anatomy? Is it the *fons et origo* of a large proportion of our woes? Should we get on more comfortably without it? I need hardly remind you that bacteriology has given this doctrine a new orientation. We have now the problem set to us: Are we likely to be more successful in our struggle with disease by attempting to destroy and evacuate our invisible foes, or by aiming at fortifying the patient's natural powers of resistance? Our therapeutic methods will be much affected by the answer which we give to this question. Galen stands for coercing Nature. Hippocrates stands for supporting Nature. A wise therapeutic will strive to find the *via media* between these two complementary conceptions.

In the early Middle Ages medicine was largely in the hands of the Arabian physicians. In the West the healing art had been overtaken by a long night. While the Arabian physicians spoke Arabic and practised the Moslem faith, many of them were Syrians, Persians, or Jews by race. Their medical lore was Greek in origin, but had travelled by devious routes to Baghdad, Jundi Shapur, Bokhara, Egypt, Cordova, and Toledo. Amongst the most

famous names are those of Rabban, Rhazes, Ali Abbas, Avicenna, Rashid, Avenzoar, Averroes, and Maimonides. Many of these physicians were prolific authors, and the *Continens* of Rhazes, the *Liber Regius* of Ali Abbas, and the *Canon* of Avicenna long enjoyed a great popularity. The last of these works is still an authority in some parts of the East. The Arabian physicians were inspired by Hippocrates and Galen. From the latter they derived most of their ideas regarding anatomy, physiology, and pathology, while in therapeutics they were guided largely by the Hippocratic tradition with its emphasis upon hygiene. They attached much weight to diet, baths, rest, climate, cleanliness, etc. They were fully alive to the influence of suggestion. Two stories have been handed down to us which illustrate this last point. Rhazes had at one time under his care the Amir Mansur, who was suffering from some obscure malady which had resisted the ordinary methods of treatment. Rhazes determined to try a little psychotherapy. He appeared suddenly in the Amir's tent with a sword in his hands, and threatened to kill him. The Amir was naturally incensed beyond measure by this extraordinary proceeding on the part of his physician, and endeavoured to seize Rhazes, who escaped with difficulty. The story goes that the Amir was cured of his malady. Avicenna once had a patient who suffered from the delusion that he was a cow and ought to be slaughtered for food. Avicenna told him that he was much too thin for the butcher, and that he must be fattened before slaughter. The patient was directed to consume large quantities of milk; he recovered his physical health and lost his delusion. Rashid, who practised at Tabriz, excelled in materia medica, a department to which the Arabian physicians made some contributions of value. He dealt largely in aromatic oils—violet, jessamine, narcissus, rose, myrtle, orange, mastic, clove, cardamoms, cassia, fumitory, betel.

The lore of the Arabian physicians reached Western Europe mainly through Spain, and there is reason to believe that the rise of the medical school of Montpellier was due in large measure to Arabian influence. The Moslem seats of learning made progress in chemistry, and this progress probably reacted upon medicine. Averroes and Maimonides represent the more philosophical side of medicine. Both were eminent philosophers as well as famous physicians.

One of the most interesting chapters in the history of medicine relates to the rise and fame of the medical school of Salerno, near Naples. Its origin is obscure, but there is reason to believe that it owed something to the traditions of Greek medicine which had lingered in Southern Italy and Sicily, something to the Arabian physicians, and something to the Jews. Its origin may be traced to the ninth or tenth century, and it became the most famous medical school in Europe during the early Middle Ages. The spirit of the school was Hippocratic. It prized clinical observation, relied upon experience, and practised a simple therapy based upon that of the Father of Medicine. The emphasis was upon diet, hygiene, baths, ventilation, and such like measures. Patients flocked from all parts to this medical shrine, which was a bright spot in a dark age, and many cures were effected. Salerno was famous for its traditions and aphorisms. Of the latter I may quote one—

> Si tibi deficiant medici, medici tibi fiant
> Haec tria: mens hilaris, requies, moderata diaeta—

an admirable piece of advice. It reminds us of Burton's recommendation of Doctor Rest, Doctor Quiet, and Doctor Diet.

Medicine entered upon a new era with the publication in the year 1543 of the great work of Vesalius, *De Humani Corporis Fabricâ*, in which he overthrew the authority of Galen and placed human anatomy upon its modern footing. His work had an immediate influence upon surgery, and was the guide of Ambroise Paré, the greatest surgeon of the Middle Ages. Paré was distinguished for his practical sagacity and robust common sense. He was influenced by the Hippocratic tradition and believed in the *vis medicatrix naturae*. He practised amputation on scientific lines and reintroduced the ligature of arteries which had fallen into disuse in the Middle Ages. Harvey's discovery of the circulation of the blood is the greatest landmark in the history of medicine. His *Exercitatio Anatomica de Motu Cordis et Sanguinis* was published in the year 1628. It met with early recognition in many countries, but its influence upon the practice of medicine was only gradual. Harvey himself is said not to have excelled as a practitioner, but the facts that he was physician to Charles I, and that he was chosen as Lumleian Lecturer at the Royal College of Physicians, show that he was held in high esteem. One of his aphorisms may be quoted: "I am of opinion that our first duty is to enquire whether a thing be or be not, before asking wherefore it is." If this maxim were always faithfully observed a great many controversies would be stillborn.

The seventeenth century, prior to the advent of Sydenham, was an unhappy period in the history of medicine. A vivid light is thrown upon it in the comedies of Molière. It was an age of dogmatism, of slavish adherence to rules, of neglect of clinical observation, and of drastic therapeutics, based mainly on methods of elimination. Pedantry, routine, blind subservience to authority, reigned supreme. Blood-letting was practised to a frightful extent. Purgation, scarification, clysters, and other severe methods were in vogue. There was a rage for antimony, especially in France, where the drug was held to have cured the young King Louis XIV of a fever. Medical conversation was larded with tags of Latin. The following specimen is given of the medical learning of the day. Why does opium produce sleep?

> Quia est in eo
> Virtus dormitiva
> Cujus est natura
> Sensus assoupire.

Medicine needed a reformer, and it found one in Thomas Sydenham, who earned the title of the British Hippocrates. Few men in any age have been more fully imbued with the Hippocratic temper. In his insight and sagacity, in his reliance upon clinical observation and practical experience, in his freedom from prejudice and erroneous theories, in the simplicity and thoroughness of his methods of treatment, he was a true follower of the great Greek. He achieved great fame both in his own country and abroad. Boerhaave, the famous physician of Leyden, never mentioned him without lifting his hat, and saluted him as "Angliae lumen, artis Phoebum, veram Hippocratici viri speciem." Sydenham wrote on many subjects—fevers, gout, chorea, phthisis, hysteria, pneumonia, dysentery, malaria. His account of chorea was so perfect that we still speak of Sydenham's chorea. He was the first to distinguish measles and scarlatina. His account of hysteria was long held as a classic. It is interesting to recall that he thought hysteria the commonest of all diseases, and held that few women are wholly free from it. He suffered much from gout, of which he has left an excellent description. He believed that it was the only disease which included in its victims more wise men than fools. In his famous work *Methodus Curandi Febres* he says: "Fever is nature's engine which she brings into the field to remove her enemy; or her handmaid either for evacuating the impurities of the blood, or for reducing it to a new state." Are we quite sure even yet how far pyrexia is an irritative reaction or part of Nature's defensive mechanisms? We know it can run to perilous excess, but routine antipyresis may run the risk of defeating Nature's efforts at elimination and control. The subject is one to reflect over. Sydenham was a stout upholder of the doctrine of the *vis medicatrix naturae*. He writes:

> "As far as I am capable of a judgment, the dictates of reason are as follows, namely, that a disease, however much its cause may be adverse to the human body, is nothing more than an effort of nature, who strives with might and main to restore the health of the patient by the elimination of the morbific matter."

He held that some diseases "are engendered through occult and inexplicable changes in the atmosphere." We are familiar with waves of both ill health and good health spreading over large areas without assignable cause. Perhaps Sydenham's notion is worthy of reconsideration. Perhaps to-day we attach too little importance to cosmic and telluric conditions. Sydenham held that impurities

in the air were one of the main causes of phthisis—an anticipation of modern thought. He laid much stress upon diet in the treatment of disease, made a large use of diluents, recommended plenty of fluid in fevers, popularized the use of Peruvian bark in ague and iron in chlorosis, advised plenty of fresh air in sick-rooms, and thought horseback exercise valuable both in nervous affections and in phthisis. Like the Greek physicians, he urged the importance of studying the patient's constitution and avoiding routine treatment.

Sydenham's writings are full of pithy axioms and aphorisms—for example: "Experientia magistra doctorum"; "Qui mundificat bene, bene sanat"; "Lachrymae—certissima signa morbillorum." "Nevertheless, I have always thought it a greater happiness to discover a certain remedy for even the slightest disease than to accumulate the largest fortune, and whoever compasses the former I esteem not only happier but wiser and better too." Sydenham believed much in common sense. His favourite authors were Hippocrates, Cicero, Bacon, and Cervantes. Sir Richard Blackhouse, who had commenced the study of medicine, once asked Sydenham what book he would recommend. His reply was, "Read *Don Quixote*. It is a very good book. I read it still."

With Sydenham I may fairly conclude these burrowings in the medical lore of past ages. We began with Hippocrates; we conclude with his English successor. Between Hippocrates and Sydenham what a vast vista of human history—a period of just over two thousand years! During that long period the healing art has seen many vicissitudes—now advancing, conquering, again coming to a standstill, or undergoing grievous relapse. But it is significant for us that the English Hippocrates found it to his advantage to have at his elbow the works of his great forerunner. We might with profit follow his example. The past is not dead—it lives in us, in our lives, and in our work. We do not forget that in the three hundred years which separate us from the birth of Sydenham medicine has made a greater advance than in all the previous ages. But, as Rudyard Kipling says, "that is another story."

THE DIAGNOSIS OF SMALL-POX AND CHICKEN-POX: A CONTRAST.

BY

G. R. PAINTON, M.R.C.S., L.R.C.P., D.P.H.,

LATE ACTING M.O.H. GLOUCESTER CITY.

(*With Special Plate.*)

THE photographs reproduced on the special plate by which this paper is illustrated exemplify the fallacy of placing much reliance upon the severity of the rash in making a differential diagnosis between chicken-pox and small-pox. Figs. 1, 2, 3, and 4 are from a case of chicken-pox; Figs. 5 and 6 from a case of mild discrete small-pox. The ratio of severity so far as the rash is concerned is the opposite to what is taught to students of medicine and is still assumed by many members of our profession—namely, that small-pox is characterized by a profuse rash, and that chicken-pox is perhaps the mildest and most negligible of all the exanthemata. Figs. 1, 2, 3, and 4 show the rash twenty-four hours old in girl aged 11; she had no prodromal symptoms; the type of rash was very superficial and the fluid in the vesicles was quite clear (glass-pox). The crenated edge of some of the vesicles can be seen in the back view. The distribution is centripetal. Figs. 3 and 4 (from the same case) show vesicles on the palms and soles, but still of the superficial type; such a condition is common in chicken-pox. Figs. 5 and 6 are of an unvaccinated boy aged 6, suffering from a mild form of discrete small-pox. The prodromal symptoms were headache, slight sickness, and pains in the limbs; the rash appeared on the fifth day. The rash, it will be noted, is centrifugal and deeper than in chicken-pox, and the pocks are circular with a central depression.

It should not be difficult to understand that doubt may exist in the mind of a medical officer when called on to make a diagnosis of small-pox in such a case as this, perhaps the first to occur in his experience, or even, with previous experience, the first case in a community hitherto free from this disease, and to report his finding to the health authority.

A correct diagnosis can and should be made, and in typical cases, even when very mild, it is simple enough. The sheet anchors of differential diagnosis are:

1. The distribution of the rash.
2. The prodromal history.
3. The characteristics of the rash.

I would like, however, to stress the possibility that these points are not always obvious and clear-cut.

Distribution.

Border-line cases occur sometimes, but fortunately rarely, and in these a count of lesions leads to no conclusion as to whether the rash is centrifugal or centripetal, and every mathematical maxim fails.

Prodromal Symptoms.

No one symptom is so consistently obvious as to constitute *per se* a specific point of diagnosis. The length of the prodromal period—that is, three to four days' illness in small-pox before the appearance of the rash—is of great importance, but very careful inquiry is often necessary, both as regards the prodromal beginnings and the first appearance of the rash, to elicit information substantiating this length of period.

The symptoms of themselves may vary in severity between one extreme and another in small-pox, and the eruption which follows does not appear to have any definite relation to the degree of their severity. Headache, a most constant feature in mild small-pox, may be described in every degree from "very severe" with delirium to a feeling of "giddiness" only. Pains in the back and limbs may vary from the excruciating type to a "feeling of tiredness" or "heaviness in the legs," enough to make the patient prefer to "lie up" rather than to "keep about." Vomiting may vary between persistent retching and "just wanting to be sick." The temperature may be high or normal. Prostration may be severe or absent.

Just before the appearance of the rash the prodromal symptoms of small-pox lessen to a very marked extent and the temperature when high may fall, so that the patient "feels better," and may return to work, or to school, as the case may be.

Chicken-pox sometimes, especially in older people, may be preceded by fairly severe symptoms of headache, etc., lasting for a few days. In chicken-pox, however, this prodromal stage is usually of shorter duration and the symptoms run on and overlap the eruption; the temperature is often highest on the second or third day of the rash.

Character of the Rash.

A typical chicken-pox rash and a typical small-pox rash are easily distinguished, but a chicken-pox rash may be severe and very pustular, and small-pox lesions may be of an abortive type; even when not abortive they may be more superficial and less markedly round than usual and may have the appearance of successive crops on successive days. The rash in chicken-pox is, however, more cuticular (glass-pox), matures more rapidly, has a more oval shape with a more crenated edge and with deeper areolae tending to run in the creases of the skin and producing an exaggeration of the ovoid appearance or giving a markedly stellate shape. On the other hand, small-pox lesions are deeper, less rapidly maturing, round, with a narrow round areola, and later on a circular central umbilication.

Confusion is sometimes caused by a resemblance of small-pox lesions to the polymorphism seen in chicken-pox, due to deeper lesions or those under denser tissue taking longer to mature, and to the fact that some small-pox lesions abort in an early stage. Then again, in chicken-pox spurious umbilication may occur, but the vesicle is more convincingly monolocular, small-pox vesicles being usually multilocular. Again, two or more small-pox lesions may run together and produce a crenated edge and an oval appearance. To complicate things a little more, post-vaccinal rashes occur more commonly than is supposed. Prodromal rashes, secondary rises of temperature, particular smells, predilection to come out more profusely at places of friction, are among other points to be considered but are inconstant.

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(*The plates show the centripetal character of the rash in chicken-pox and its centrifugal character in small-pox.*)

(The plates show the centripetal character of the rash in chicken-pox and its centrifugal character in small-pox.)

FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

FIGS. 1 TO 4.—A case of chicken-pox. The superficiality of the lesions is well shown on the palm of the hand and sole of foot.

G. R. PAINTON: DIAGNOSIS OF SMALL-POX AND CHICKEN-POX.

FIG. 7.—Sister, aged 3 (unvaccinated), of patient shown in Figs. 5 and 6. More profuse rash.

FIG. 6.

FIGS. 5 AND 6.—A mild case (boy, aged 6) of small-pox with very slight rash.

FIG. 5.

It is the weighing up of all points that produces the convinced diagnosis, and it is this diagnosis in an early case of mild small-pox that is at the same time both essential and difficult. A missed case (for the doctor is not always sent for) or an error in diagnosis is the usual and regretted beginning of epidemics, mild or severe.

There is no dividing line to be plainly seen between small-pox *sine eruptione*; mild small-pox, with one, two, ten, twenty, or a hundred lesions; severe, discrete, confluent small-pox, and the haemorrhagic forms of this disease.

The conjecture that there is a separate and distinct disease—alastrim—must be rejected. Leake and Force of the United States Public Health Service made certain experiments on rats and monkeys with material from cases of so-called alastrim in the West Indies. They found[1] that in monkeys a vesico-papular eruption was produced by inoculation of crusts or the contents of vesicles from such patients and that the animals were protected against re-inoculation with the virus or with vaccinia. Rats inoculated with alastrim did not develop an eruption, but became almost completely immune to vaccine virus. When intracutaneous inoculation is made with small-pox crusts, alastrim material, and vaccine virus in rats in the manner used in the Schick test for diphtheria, a reaction occurs. Rats previously inoculated with vaccine virus gave an intracutaneous reaction to small-pox crusts, alastrim material, and vaccine virus, but remained negative to chicken-pox crusts. They conclude that definite immunity to vaccinia is produced by previous inoculation with alastrim and that this affords additional evidence of the essential identity of alastrim with small-pox.

Taking an average of small-pox fatality for 276 cities in the United States of America and Canada, the rate has increased from 0.6 per cent. in 1920 to 5 per cent. in 1922, and at the present moment it would be unwise to presume that the mild type of small-pox as seen in Gloucester and the North of England will not revert in the future to the more fatal form of the disease.

I have endeavoured in this short article to bring out the fact that a definite diagnosis between these two diseases is at times extremely difficult. In the recent Gloucester epidemic the two diseases existed side by side in the same family; in such an instance a case of chicken-pox was admitted to hospital as one of small-pox. The patient, on recovery, was discharged from hospital, and a few days later passed through a typical prodromal history and developed a typical and profuse small-pox rash! The converse has also happened, a small-pox patient on discharge from hospital developing a typical chicken-pox eruption within a month of discharge.

Administrative measures for dealing with an epidemic of mild small-pox must at present remain the same as if we were dealing with the virulent type of the disease. One matter of paramount importance which should never be omitted where small-pox threatens is the provision of an observation ward where cases of doubt can be isolated. As stated before, a correct diagnosis can and should be made, and the number of cases for observation should be small.

REFERENCE.

[1] Report of U.S. Public Health Service, vol. 36, No. 25, June 24th, 1921.

FIG. 7.—Sister, aged 3 (unvaccinated), of patient shown in Figs. 5 and 6. More profuse rash.

FIG. 6.

FIG. 5.

FIGS. 5 AND 6.—A mild case (boy, aged 6) of small-pox with very slight rash.

CLINICAL NOTES OF FIFTY CASES OF SMALL-POX (1923).

BY

G. F. RIGDEN, *M.C.*, M.B., B.S.,

MEDICAL OFFICER, GREENBOTTOM SMALL-POX HOSPITAL, GLOUCESTERSHIRE.

IN the following notes of 50 consecutive cases occurring in West Gloucestershire, the main consideration has been to show on which of the classical diagnostic points reliance may be placed in the light of present experience, and especially to emphasize those points in which the current type of the disease differs from the classical. The cases are the first fifty admitted to the West Gloucestershire Small-pox Hospital during the present epidemic, and occurred between May and October, 1923. The first and several subsequent cases were imported from Gloucester; the remainder were contacts of earlier cases.

Of the 50 cases, 27 were males, 23 females; the youngest was 2 years of age; 2 belonged to the age-group 2 to 5 years, 9 to the group 5 to 10 years, 13 to group 10 to 15, 9 to group 15 to 20, 9 to group 20 to 30, and 8 were from 47 to 55 years. Forty-two were unvaccinated; the remaining 8 had been vaccinated in infancy and never re-vaccinated; the youngest vaccinated case was 23, and the next youngest 47 years old, so that none of the patients had been vaccinated within twenty-three years and only one within forty-seven years.

In type the cases were fairly clearly divided into a mild type (36 cases) and a semiconfluent type (14 cases). The mild type had a less severe prodromal illness, fewer spots, and a quicker convalescence. Some of these were very mild indeed, the prodromal illness being negligible and the rash confined to a very few spots on the face, wrists, or ankles. There can be no doubt that several cases of this kind passed unrecognized, so keeping up the epidemic; it was established beyond doubt that the mildest cases could hand on the disease in semiconfluent form to contacts. Previous vaccination did not appear to affect the type—of the 8 vaccinated cases 6 being of the mild and 2 of the semiconfluent type.

The semiconfluent type of case had a more severe prodromal illness, being in every case confined to bed, a profuse rash consisting of many hundreds of spots so that the features in the worst cases were quite unrecognizable, and usually a longer convalescence. In none of these cases was the constitutional disturbance at all so severe as one would have expected from so many pustulating vesicles.

One of the patients had been successfully vaccinated in the incubation period, four good vesicles forming; his subsequent illness was in no way different from that of the other mild cases. The remaining 49 were vaccinated on admission to hospital to confirm the diagnosis; immunity to vaccinia was complete in every case.

Incubation Period.—As a student, the writer was once asked by his chief on what day of the week the rash of small-pox most often appeared; the correct answer was "Sunday"—that is, fifteen days from the most likely day of infection under prevailing social conditions. Although difficult to establish with accuracy, this appears to have been about the interval in these cases.

Prodromal Period.—The onset being in the great majority of cases quite definite, it has been possible to define the length of this period with more accuracy and the result has failed altogether to confirm the four days universally described in textbooks. In three cases it was impossible to determine accurately the commencement of the disease; of the remaining 47 cases the rash appeared once on the second day, three times on the third day, twelve times on the fourth day, fourteen times on the fifth day, twelve times on the sixth day, four times on the seventh day, and once on the eighth day; in a certain number of cases, however, medical advice was not sought until the rash was well out, and it is possible that the rash may occasionally have been present a day before it was recognized by the patient's friends.

In the great majority of cases the prodromal illness was first diagnosed as a "chill" or "influenza"; two patients who had had pneumonia before complained of "pain like pneumonia but a little lower down"; one case was diagnosed "lumbago." Only four times was lumbar pain at all prominent, headache being the pain usually complained of. Initial vomiting occurred in 3 cases; there was no case of convulsions and no prodromal rash. Those cases which were under observation during this period had usually a temperature of from 100° to 103° F., which fell to normal when the rash appeared, and in quite a number of instances on the day previous to the rash. It was impossible to establish any relationship between the duration of this period and the severity of the subsequent disease.

The nature and distribution of the rash was very consistent in all cases, differing only in quantity. Appearing

always first on the face, it followed in a few hours on the arms and legs, with a few spots on the back; the chest and abdomen were nearly free, in many mild cases absolutely free, the picture so formed being very striking in its contrast to varicella; on the limbs the rash was always centrifugal. There was no succession of crops as in varicella, all the spots in a given part of the body being of the same age. The individual spots were in the deeper layers of the skin as opposed to the superficial vesicles of varicella, and passed through the classical stages on the face in about ten days; in the limbs much longer was required, unbroken pustules being often present after the face was clear; the last to clear up were always round the ankles and on the soles of the feet. A few of the largest spots were punctured and found to be unilocular; umbilication was frequent but not universal. So uniform was the rash in its essential features as regards both its nature and distribution that the diagnosis rarely gave any anxiety once the rash was well out.

Secondary rise of temperature occurred in all but one of the semiconfluent cases and in 10 of the mild cases—twenty-three times in all. It was invariably septic in type, and while it lasted patients always felt worse than during the early days of the rash, though usually not so ill as in the prodromal period. It commenced on the third or fourth day of the rash and lasted for one day only in 7 cases, for two days in 4 cases, for three days in 2 cases, for four days in 7 cases, and for five, six, and nine days in one case each. In only 10 cases did it exceed 100°, the highest recorded being 101.6°.

Conjunctivitis occurred during pustulation in 6 cases and appeared to be caused by pustules on the eyelids; arthritis of the knee occurred once during convalescence, in a man of 55 not previously subject to "rheumatism." There were no other complications; one case each of imperfectly compensated mitral disease and of six months' pregnancy were unaffected, both being cases of "mild" type.

Treatment was symptomatic only. From the period of scabbing onwards all patients were liberally treated with olive oil and hot baths; the nursing staff as well as the author were convinced that this materially shortened convalescence.

Duration of Infectivity.—After the scab had fallen off a purple scar remained, at first slightly raised; around its edge was often attached some dry skin, the remaining circumferential part of the skin originally covering the vesicle. Until this had disappeared from all the spots the patient was regarded as still infectious. The last part to clear was invariably the ankles and soles of the feet, and the process was completed within three weeks of the appearance of the rash in 23 cases; in 20 cases infection persisted to the fourth week, in 3 cases to the fifth, in 3 cases to the sixth, and once to the seventh week. Liberal applications of olive oil and hot baths materially assisted the removal of this dry skin; premature picking off of the scabs, on the other hand, delayed the process. The patients were discharged immediately at the end of this period and there were no "return cases"; the scars faded gradually in the course of several weeks after discharge and do not appear to have left any pitting.

Conclusions.

1. It is impossible to diagnose the present type of small-pox before the appearance of the rash.

2. Fall of temperature without appearance of rash in a suspected case does not immediately preclude the possibility of small-pox; nor does the non-appearance of rash on the fourth day.

3. The centrifugal distribution of the rash and its comparative absence on the chest, its depth in the skin, and the absence of successive crops are reliable guides in the differentiation from chicken-pox.

4. Successful vaccination performed after the disease has appeared excludes small-pox, but successful vaccination during the incubation period has no diagnostic value.

5. The protective value of recent vaccination is once more abundantly confirmed.

TWO CASES OF INTRA-ABDOMINAL HERNIA.

BY

E. ROCK CARLING, M.B., F.R.C.S.,

SURGEON TO THE WESTMINSTER HOSPITAL,

AND

E. MERVYN JONES, M.R.C.S.,

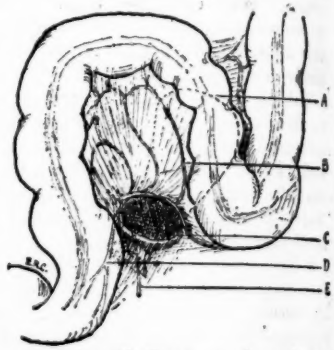
LATE HOUSE-SURGEON TO THE WESTMINSTER HOSPITAL.

I.—HERNIA INTO THE INTERSIGMOID FOSSA.

THE intersigmoid fossa has been described by Treitz,[1] Waldeyer,[2] and Treves[3]; the mechanism of its formation, suggested by Toldt,[4] was confirmed by Moynihan.[5] Records of hernia into the fossa are very rare. Bryant,[6] Eve,[7] Eccles,[8] Coley,[9] Murphy,[10] Barnard,[11] Black,[12] and Marsh[13] relate or refer to cases, but, in some of these, particulars are wanting. There are no doubt others, overlooked, but the references have not been verified. Most of the cases were seen as "intestinal obstruction," without previous history of abdominal disorder; in one or two there was a history of attacks of constipation with left-sided abdominal pain.

The patient, aged 47, a man of fine physique, at the end of a journey from the Continent, was seized with sudden abdominal pain, at first in the right iliac region; later it spread across the whole lower abdomen, and he vomited. A few hours later he was seen by Dr. Cumming Grant, who found him collapsed. He had had an urgent desire for stool, which persisted although the bowels did not act, nor was flatus passed. At first he had micturated easily, but now had difficulty and pain. Vomiting recurred.

When seen by us the whole abdomen was distended, rigid, and tender, the greatest tenderness being in the left iliac fossa; there was no recognizable hyperaesthesia, nor could any "lump" be felt; the whole abdomen was slightly tympanitic. On rectal examination oedema of the mucosa was found high up and general fullness of the recto-vesical pouch, but no "lump" could be felt.



Intersigmoid Fossa. A, Approximate outline of sac behind descending mesocolon. B, Sigmoid branches. C, Mouth of pouch as distended by incarcerated gut. D, Superior haemorrhoidal artery. E, Approximate position of ureter.

The patient himself, although he had had no previous attack, felt sure he was suffering from appendicitis. Without dismissing that possibility, the abdomen was opened as for intestinal obstruction. On entering the pelvis the hand at once encountered an indefinite fixed fullness on the left posterior wall. Coils of small intestine of unequal calibre were seen passing towards this region, but not until the sigmoid had been drawn up and over to the right was the mass revealed. It proved to be incarcerated small gut behind or between the layers of the sigmoid mesocolon. The whole sigmoid and upper part of the rectum were markedly oedematous. The opening looked downwards and to the right. The intestine, 8 to 10 inches, was easily withdrawn and was clearly viable. The pouch admitted three fingers to their whole extent, and was directed upwards and to the left. The margin of the opening was rounded though oedematous, and the sigmoid artery, arching in the upper edge, coursed down the left rim. The ureter was not identified; the bifurcation of the iliac was below and slightly to the right. It was thought inadvisable to attempt any suturing of the opening; the sigmoid was turned down and its outer edge stitched to the abdominal wall as far down and to the left as possible.

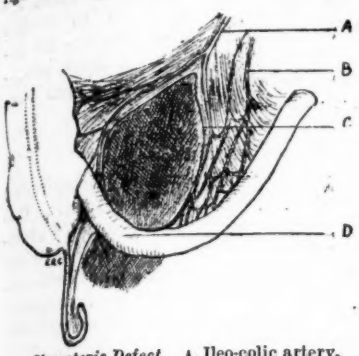
Recovery was without incident.

II.—HERNIA THROUGH A DEFECT IN THE MESENTERY.

The anatomy of the aperture in the following case corresponds exactly with the description given by Treves.[14] Possibly the type may not be very rare, but records are certainly scarce. Howard Marsh[15] described one in 1888, and Barnard[16] mentions two, but both of them were traumatic. This case differed entirely from the two of deficiency of the last part of the mesentery recorded by Armstrong,[17] in that the terminal part of the ileum was quite free from attachment to the abdominal wall. There was no history of trauma in this instance. It seems probable that the attacks of pain were due to incarceration of a loop of gut.

A single woman, aged 31, one of twins, a patient of Dr. Garden, was admitted to the Westminster Hospital in May, 1923, having had attacks of "appendicitis." The first attack, in February, 1923, was

accompanied by abdominal pain, a dull aching across the belly above the umbilicus, shooting down into the right iliac fossa and right loin. There was nausea but no vomiting. Micturition was normal; the attack lasted twenty-four hours. There were recurrent attacks in March and April; the former lasted two days; in the latter, which coincided with the onset of a menstrual period, the pain was very severe, and continued intermittently until admission on May 19th. The diagnosis was "appendicitis." The patient was said to have suffered from "gastric ulceration" in 1913 and "gastric influenza" in 1921.



Mesenteric Defect. A, Ileo-colic artery. B, Branches of superior mesenteric. C, Edge of gap held widely open. D, "Free" part of ileum.

Examination on admission disclosed nothing beyond rigidity in the right iliac region, tenderness over the caecum on deep palpation and high up on the right wall of the rectum; there was slight but definite hyperaesthesia in the right lower quadrant of the abdominal wall. The temperature was 98.6°, pulse 90.

At operation the appendix was found, 5 inches long, with a definite kink; the superficial vessels were injected, but there were no adhesions. On further examination a defect was found in the mesentery of the terminal part of the ileum. The slit-like aperture was about 5 inches long; the edges could be freely separated, and then allowed passage to all the fingers and palm; the margins were firm, smooth, slightly thickened, and opaque. Surrounding the defect was an arcade between the ileo-colic artery and a terminal branch of the superior mesenteric. A loop of small intestine, 6 to 8 inches long, passed with its mesentery through the opening; it was withdrawn with but little difficulty. There were no signs of previous inflammation in the region. The margins of the aperture were approximated by a continuous suture. Recovery was without incident.

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British Medical Association.

PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, 1923.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE.

HENRY DEVINE, O.B.E., M.D., F.R.C.P., President.

DISCUSSION ON THE SEQUELAE OF LETHARGIC ENCEPHALITIS.

OPENING PAPER

BY

E. FARQUHAR BUZZARD, M.A., M.D.OXON., F.R.C.P.,
Physician, St. Thomas's Hospital.

ALTHOUGH only about five years have elapsed since lethargic encephalitis was first recognized in this country, we have become so familiar with the ravages caused by this disease that the consideration of its sequelae can hardly fail to prove interesting and instructive. In opening this discussion it is perhaps desirable to define as far as possible the meaning of the term "sequelae" as applied to encephalitis. This in itself is no easy task because the active phase of the disease has little uniformity in regard to its features, its severity, or its length. It is often difficult, therefore, to separate the primary results of the inflammatory process from signs and symptoms which appear at a time when the inflammation of the cerebral tissues may be presumed to have died away.

For the purpose of this discussion it may be convenient to regard as sequelae (1) those disorders of function which appear for the first time after the disease has spent itself, and (2) progressive alterations in defects of function which have been left as more or less permanent legacies of the disease. A good example of the first category is epilepsy and of the second is the progressive intensification of the Parkinsonian syndrome already inaugurated during the acute phase. The acceptance of these two classes of sequelae can be justified on the plea that the pathological process underlying either is sufficiently obscure to warrant our closest inspection.

The interest of our discussion is likely to lie in three directions. In the first place we shall be glad to learn from one another of the varieties of sequelae which have been met with, their relative frequency and their relationship to the features of the primary disease. Further light on this subject would be invaluable in regard to the question of prognosis. In the second place we can exchange views as to the nature of the changes in the cerebro-spinal system responsible for those defects of function which we include in our definition of "sequelae." This is a pathological problem of fundamental importance. Finally, we shall welcome the opportunity of acquiring any information which may be available in respect to the prevention or cure of these distressing disabilities.

It is more than probable that our list of sequelae, already long, will be added to from time to time, seeing that every function of the central nervous system may be affected by the disease. I shall be content to draw your attention to those phenomena which are common and to those which may have some special interest.

Mental Sequelae.

When the relatives of a patient suffering from encephalitis are told that his brain is inflamed their first concern is the mental state of the victim in the event of his surviving the disease. An answer to this question must always be carefully guarded, as experience has taught us that encephalitis may leave in its train many defects of function on the part of the higher centres varying greatly both in regard to severity and duration. From a practical point of view it is well to warn relatives, and often the patient himself during convalescence, that, however slight and transient the active phase of this disease, it is apt to leave the nervous system very much below par for many months and sometimes for years.

In simple cases the patient may complain only of those symptoms which we associate with the term "nervous exhaustion" and which include lack of energy, of concentration and decision, depression, restlessness, and insomnia. Unless the warning note is sounded children are sent back to school and adults return to business long before they are fit for work, and sometimes with disastrous results. Knowing what we do of the pathology of the disease, it is folly to expect such a delicate piece of machinery as the human brain to recover its normal functions unless it is given ample time for rest and recreation.

Fortunately mental changes are not more severe than this in the majority of cases. But there are other patients in whom the disease initiates a complete alteration of mental capacity or a revolutionary change in behaviour and adaptation.

A woman developed an acute attack of delusional insanity lasting for a fortnight about two months after recovering from encephalitis. Another woman displayed for many months a mental attitude which was quite at variance with her normal personality. She was boastful, conceited, lacking in reserve, and loquacious. Curiously enough she recognized and deplored her tendencies, although unable to control them. Perhaps the most common and most tragic cases of mental deterioration are seen amongst children.

Bright, well behaved individuals before the illness, subsequently lose most of their moral sense and become quite ungovernable either at home or at school. A particular group of them display somnolence during the day and restless uncontrollable excitement at night. A few children show a progressive mental deterioration, sometimes, but not always, associated with epilepsy. Severe paroxysmal headaches are not uncommon in patients who continue to exhibit attacks of drowsiness and a progressive impairment of intelligence.

Involuntary Movements.

Much has been written about involuntary movements in encephalitis. They may occur during the acute phase or may make their first appearance weeks or months later. They may involve any muscular territory and vary from rhythmical twitches of one or two muscles to complicated and more or less co-ordinated movements of a limb. Speaking generally, these muscular spasms occur chiefly when the patient is at rest and unoccupied, voluntary activity apparently being able to inhibit temporarily the involuntary disorderliness. I need not detain you with any further description of these movements, but should like to refer to one case in which the muscular spasms had features of interest.

In December, 1920, I saw a man, 45 years of age, whose illness had commenced three weeks earlier with intense pain and hyperaesthesia over the right side of the scalp. This was followed a few days later by fever, drowsiness, diplopia, and left-sided ptosis. When I saw him his temperature was 102°, he was difficult to rouse, and when roused quite disorientated. His pupils were small and sluggish in their reaction to light. Ptosis was more marked on the left side. He displayed clonic contractions of various muscles, particularly the left external oblique, the right pectoral, and the flexors of the fingers of both hands. The abdominal reflexes were absent, jerks present, right plantar response extensor, left flexor. He recovered from the acute phase of his illness in a few weeks and in the latter part of March, 1921, came to see me at my house. He then felt well in himself, but complained of pain on the radial side of the right arm and along the ulnar border of the left. On examination his pupils responded badly to accommodation and power of convergence was defective. The right face and arm were slightly weaker than the left. When stripped he displayed rhythmical contractions of the right deltoid, pectoral, latissimus dorsi, biceps and pronator radii teres and of the left pectoral and latissimus dorsi. The number of muscles involved varied with the position of the patient. Most were in action when lying relaxed on the couch, fewest when upright and walking about. The muscular contractions were quite regular and careful observation showed that their frequency corresponded to the pulse rate—about 72 to the minute. Three months later the spasms were much diminished in severity and in distribution, but were still regular and in time relationship with the heart beat. As far as I know this relationship has not been recorded, although Dr. A. J. Hall, in his interesting Lumleian lectures, refers to the fact that involuntary movements synchronizing with respiration have been observed.

More information is required in regard to the duration of these involuntary movements. I have seen them disappear in a few months, and I have seen them last five years, but as far as my experience goes the general tendency is in the direction of improvement as time goes on.

The Parkinsonian Syndrome.

This is one of the commonest sequelae of encephalitis. It may develop in an intense form early in the disease, gradually become less marked, and never show any signs of progress. The first case of this kind was one which I reported in 1918. The patient was then completely disabled but he gradually recovered sufficiently to get back to his work, which he is still following in spite of the fact that he is 59 years of age. Not unnaturally one was at first inclined to regard the prognosis in these cases as favourable. Further experience has shown, however, that this is not by any means the invariable rule, and most of us must have seen patients whose symptoms and physical signs have become steadily intensified and whose disablement has become gradually more and more complete. On the other hand, there appears to be a middle group of cases in which the amount of disability tends after a while to become stationary, especially if the conditions of life are favourable. Youth does not seem to be a factor of much advantage in this relationship as my younger patients have certainly not done better than their seniors.

Respiratory Disorders.

Various disorders in the nervous mechanism of respiration have been recorded in the literature of encephalitis. One of my patients, a young subject with a progressive Parkinsonian syndrome, complained of shortness of breath which came on in attacks for no apparent reason. Under observation it appeared to me that from time to time involuntary respiration was replaced by voluntary and exaggerated breathing, but whether this was induced by failure of the involuntary mechanism it was impossible to determine.

Hiccup and Vomiting.

Spasmodic contractions of the diaphragm giving rise to hiccup are frequent complications of encephalitis, and may persist as sequelae for many months after the acute illness. Not infrequently they recur at intervals when the patient is tired or under stress. Attacks of vomiting are much less common and may be unaccompanied by any feeling of nausea.

Optic Neuritis.

Slight papilloedema is not infrequent in severe cases during the height of the disease, but Foster Kennedy has drawn attention to the occasional occurrence of severe optic neuritis as a late symptom in convalescing patients. I have recently observed optic neuritis in a young woman who developed the complication when headache, drowsiness, and other symptoms were disappearing. It persisted for many weeks and was associated with paroxysms of transient amblyopia lasting for a few minutes. When last seen the patient was well in all other respects and the papilloedema was decreasing in intensity.

Lethargy.

In some cases lethargy may be regarded as a sequela, although there is little doubt that recrudescences of the active disease are sometimes responsible for its late appearance. I have seen several patients in whom lethargy has been a marked feature of the primary illness, who have made sufficiently good recoveries to allow of their taking up active life and who have still recurrent attacks of sleepiness, sometimes associated with headache. In this group there is nothing clinically to suggest a recrudescence of the cerebral inflammation, and I am inclined to think that the drowsiness has a mechanical basis—in other words, that the patients are suffering from a mild degree of hydrocephalus.

The Pathogenesis of Sequelae.

It must be conceded, I think, that all the sequelae of encephalitis cannot be attributed to recurrent attacks of cerebral inflammation, although there is experimental evidence to show that the tissues of the brain shelter an active virus for many months after the primary infection. Encephalitis lethargica is alone among the encephalitides in being characterized by the frequency and disabling effects of sequelae, and we must study the morbid anatomy of the disease to obtain any enlightenment as to their origin. It is now generally recognized that vascular accidents of great severity are more common in this form of encephalitis than in others, and many of the symptoms of the acute phase are produced by large haemorrhages, thromboses, and infarctions. Moreover, many observers have now recorded remarkable changes in the vessels of the brain, both in patients who have died during the acute stage and in others who have survived for many months. These changes have consisted of hyaline and calcareous degeneration of the vessel walls, chiefly involving the media and adventitia. It is obvious that such a process must interfere with the circulatory function of the vessels and sooner or later lead to defective nutrition of the tissues. This defect need not necessarily involve necrosis, but it is not unreasonable to

suppose that the blood supply to the nervous elements in territories where the vessels have undergone these changes is of an unreliable description. In this connexion I would remind you of the myoclonia with pulse rate rhythm to which reference has already been made. Moreover, it is comprehensible that tissues exposed to such a precarious source of nutrition should gradually lose their functional activity and so give rise to symptoms of progressive deterioration such as are recognized clinically in various ways.

It is difficult to avoid the conclusion that in encephalitis lethargica the virus has a specific affinity for vascular structures and that the resulting inflammation leads in some cases to temporary and in others to permanent interference with the blood supply of the tissues. If this is allowed it is not difficult to understand that certain areas of the brain may display a transient or progressive defect of function. Some observers have found that these vascular changes are more common and more pronounced in the basal ganglia than elsewhere, thus providing an explanation of the frequency with which the Parkinsonian picture is met with as a sequela. The problem of involuntary movements is not so easy as it involves the question whether they can be regarded as the product of irritative stimulation or of the unopposed activity of particular nervous centres. The solution of this problem cannot yet be stated with any degree of certainty, but I would remind you that an artificial anaemia of the cerebral cortex may give rise to involuntary clonic movements.

But there are other sequelae which cannot be attributed to vascular deficiencies. I have always regarded the lethargy of encephalitis with its remarkable fluctuations as impossible to understand except as the result of mechanical interference with the drainage of cerebro-spinal fluid from the third and lateral ventricles. In the active phase of the disease this may be explained by the inflammation and oedema of the tissues around the aqueduct of Sylvius. When lethargy appears as a recurrent sequela it may be justifiable to regard it as evidence of imperfect drainage of the ventricles due to scarring of the periaqueductal tissues. I am aware that there are other theories in regard to the origin of lethargy. The suggestion that it is a symptom of defective pituitary function and therefore associated with other evidences of hypopituitarism sometimes observed to follow encephalitis is interesting and worthy of consideration. Hitherto there has been no definite anatomical evidence that the hypophysis is often implicated.

Papilloedema, when it is accompanied by headache, vomiting, and other signs of increased intracranial pressure, does not require any special interpretation, but the late form of optic neuritis after signs of increased pressure have subsided, to which I have already referred, asks for a different explanation. Foster Kennedy suggests that local meningitic changes causing obstruction to the venous flux from the optic nerves may be the exciting cause of this condition, a suggestion which my own experience leads me to support.

Summarizing the later pathological changes resulting from encephalitis lethargica which may be responsible for the clinical sequelae, they appear to fall into three main categories: (1) Changes in the vessel walls with local impairment of blood supply to particular areas—especially in the basal ganglia; (2) a condition of chronic or intermittent hydrocephalus due to imperfect drainage of the ventricles; and (3) meningeal thickenings and occasionally perhaps loculated meningeal cysts interfering with venous drainage from the optic nerves.

Treatment.

We are still without any specific treatment for the acute disease and consequently unable to prevent the development of sequelae. Perhaps some of the mental disabilities already referred to may be avoided by the simple precaution of giving patients a sufficiently long and sufficiently protected convalescence. The same precaution may be effective in clearing up the residual symptoms and in rendering the appearance of physical sequelae less likely. The chief problem we have to face, however, is that of treating such serious disabilities as epilepsy, involuntary movements, and the distressing disability associated with the Parkinsonian syndrome. The treatment of post-encephalitic epilepsy requires no special comment. In the main it is medicinal, but there are occasional cases in which the symptoms point to a definite focal lesion and in which the question of surgical intervention must be considered. I have seen meningeal cysts following encephalitis productive of Jacksonian epilepsy and cured by surgery.

So far it has been difficult to credit any therapeutic measure with success in preventing or diminishing involuntary movements. Perhaps tremor may be lessened by the exhibition of hyoscine, but my experience has not been very encouraging in this direction. Some observers have found that hyoscine and gelsemium are effective in mitigating the rigidity characteristic of the Parkinsonian patients and suppositories of belladonna have in one case at any rate produced dramatic if only temporary amelioration.

Speaking generally, I have had to rely chiefly on a combination of psychotherapy and physical re-education for any results in the way of alleviating distress and disability. If our conception of the pathological changes underlying the sequelae of encephalitis is correct, our only hope of success lies in helping Nature in its efforts to restore functional activity to damaged tissues.

DISCUSSION.

Dr. GEORGE RIDDOCH (London) considered it justifiable to limit the term "sequelae of encephalitis lethargica," as Dr. Buzzard had done, to two groups of disorders—namely, (1) those that had appeared first in the acute attack and persisted, and (2) those that had developed only after an interval of varying duration. But, at the same time, it was difficult to exclude subsequent acute attacks which not uncommonly occurred and were probably due to lighting up of the infection that had lain dormant in the nervous system. In illustration, the case of a girl of 16, at present a patient in the London Hospital, could be cited.

In the autumn of 1918 she had had a febrile illness in which profound lethargy and nocturnal delirium were prominent symptoms. She recovered in about a month. Eight weeks ago she again became ill with fever, diurnal sleepiness and nocturnal restlessness. Two weeks later diplopia developed followed after a week's interval by persistent hiccup that prevented her from sleeping. On admission to hospital two days later she was excited and mentally alert; she laughed immoderately and insisted that she felt perfectly well in spite of severe hiccups recurring at a rate of about 120 a minute. The other physical signs were as follows: photophobia, dilated pupils, which reacted fairly well on convergence, very poorly to light, and not at all on accommodation; weakness of both external recti with diplopia; slight right ptosis, which later we found had been present from childhood; myoclonic movements of the abdominal wall and both upper limbs and weakness of the abdominal wall in the right upper quadrant, where the abdominal reflex was brisker than in the other segments. After a hot bath the hiccups disappeared, and in a few days the myoclonic movements had greatly diminished in frequency and vigour.

If the original illness be regarded as an attack of encephalitis lethargica this patient had an acute recrudescence of the infection after the unusually long interval of five years. It should be remembered that a recrudescence might occur in cases in which the original attack appeared to be slight.

During the past year Mr. Duncan, late house-physician to the Medical Unit, London Hospital, had carried out an investigation on the after-effects of encephalitis lethargica in patients who had been admitted to the hospital between March, 1918, and September, 1921. During this period of three and a half years there were 136 patients, 35 of whom died in the acute phase of the illness. Of the remaining 101, 83 were traced and examined at least one and a half years after their discharge from hospital. The majority of the survivors showed defects, either severe or slight. Mental disorders, varying from defective memory or emotional instability to moral degradation and dementia, were found in nearly seven-tenths of the patients. The high proportion of cases in childhood and early adolescence was striking, for in more than one-half the age was under 20 years. There were nine children who had been under 6 years of age at the time of the acute illness, and six of them two or three years later were backward in mental development. Moral perversions, such as purposeless stealing, outbursts of rage with destructiveness, neuroses, and periodic automatisms were met with, especially in children.

Among physical defects the frequency of cranial nerve palsies must be mentioned. They were present in 57 out of 75 cases and were nearly all residual from the acute attack. Ophthalmoplegias were most common. Tachycardia, probably due to involvement of the vagi in the medulla, occurred in three patients, in one of whom exophthalmos, goitre, tremor of the hands and adiposity developed soon after the acute illness. Adiposity was a prominent feature in seven cases. Over one-quarter of the patients were affected with "symptomatic paralysis agitans," in which the attitude of flexion, lack of facial expression, and rigidity were more common than tremor. It was usually progressive and was very frequently associated with ophthalmoplegia. This serious disability commonly began to appear several weeks or months after the subsidence of the acute phase of the illness. In contrast were the cases in which involuntary movements, especially of the choreiform variety, were prominent. These movements usually developed early and showed a tendency to spontaneous improvement. Sensory loss was rare, being met with in one case only, but pains in the trunk and limbs were common.

The more one saw of this dreadful disease the more did one realize the necessity of giving a guarded prognosis even in apparently mild cases of it. Apart from the mortality rate of about 20 per cent. during the initial acute stage, the liability to permanent and even progressive disabilities was considerable and relapses might occur. The treatment unfortunately was still symptomatic.

Dr. C. M. HINDS HOWELL (London) based his remarks on an analysis of 34 patients who were observed during the acute stage of encephalitis lethargica, and of 19 other cases who only came under observation on account of residual symptoms resulting from their illness. The cases were mostly those of hospital patients who were either under his own care or the care of his colleagues whom he had to thank for opportunities of seeing and following up the after-history of their patients. Of the 34 acute cases 6 died, giving a case mortality of 17.6 per cent. Of the remaining 28 he had been unable to trace 8 patients, one of whom had apparently made a complete recovery at the time of discharge from hospital. He did not include this case amongst those who made a complete recovery—as, of course, it was possible that he might have developed residual symptoms since. Eleven cases made a complete recovery, or approximately 33 per cent. Nine cases had residual symptoms, and would be considered together with the 19 other cases who had come under observation since their illness. With regard to the 11 acute cases which recovered without residual symptoms, 3 of these were examples of the Parkinsonian type, one of them an extreme example of this. The patient was a girl of 17 who was under the speaker's care at the National Hospital. Almost completely immobile, dribbling from the mouth, her speech was unintelligible. She had very marked ptosis, but ocular movements were but little restricted. In this case Dr. Hinds Howell gave a very unfavourable prognosis which happily and very unexpectedly proved completely wrong. Three patients had myoclonic tremors; 7 had ocular palsies of well defined character. In one case the incidence of the disease was mainly cerebellar.

Prognosis as to complete recovery, or indeed as to recovery at all in any particular case, was impossible. He thought the chances of complete recovery were best in the cases in which the incidence of the disease was not mainly mesencephalic. It was always very doubtful in cases which developed well marked Parkinsonian symptoms combined with extensive ocular palsies.

He then briefly referred to the group of 28 cases in which residual symptoms remained. He did not think that these patients presented any very unusual symptoms, but it might be of interest to note the most conspicuous features in connexion with them. In one case only, a patient who had made what appeared to be a complete recovery in hospital subsequently relapsed; but unfortunately he could not give the exact period that elapsed before the patient developed the Parkinsonian symptoms that he now presented. Two cases, both of them of the Parkinsonian type, dating from 1918, were steadily getting worse, albeit very slowly. One boy, a 1921 case, was steadily improving, his residual symptoms being a choreiform movement of one shoulder, and an appetite which was pathologically large, even for a boy of 10. The others remained more or less in a stationary condition. Mental changes or some alteration in character constituted the commonest residual symptoms, and had been noted in 18 of the patients. The severity of the mental disturbance varied very much. At one end of the scale one found merely a slight loss of emotional control or emotional response, whilst at the other one found a mental state bordering on dementia. None of the cases, however, had had to be placed in asylums. Loss of emotional response was common. "I have forgotten how to laugh" was a common complaint; unfortunately for them fewer had forgotten how to cry! Slowness of the mental processes, corresponding so often with slowness of physical reaction, was also common enough. Impulsive thoughts and actions had been noticeably present in 2 cases, both of them of the Parkinsonian type; one was a child who performed unexpected actions, the result of impulse, explained them by saying that she was behaving as she did in order to get well; the second was a woman, aged 23, who had on more than one occasion narrowly escaped suicide. Express trains and bridges under which water was rushing excited an extraordinary influence over her. She told him: "I don't want to die, but when I see a train rush past I feel I simply must throw myself in front of it. I don't know why I should." It seemed as though, exasperated by her physical limitations, she found an almost irresistible attraction in the rush of water or an express train. One other case exhibited loss of power of concentration and memory to an amazing extent. She could repeat the substance of a sentence two minutes after reading it, but not later.

In Dr. Hinds Howell's experience patients who had suffered a mental change did not tend to improve. The clever child who had become stupid and the "easy" child who had become "difficult," he was afraid, remained more or less *in statu quo*. Parkinsonian symptoms formed the next largest group. They were present in 15 cases of the 28, and naturally varied a good deal in extent. One might find a limited type of this condition, the face only affected, or face and arms, with legs practically normal. In a few cases the rigidity was so extensive and severe as to make any voluntary movement impossible. Disorders of gait in the more severe cases were of course common, festination, propulsion, and retropulsion occurring characteristically. Tremor had not been observed so frequently as rigidity, and when present was not usually of the paralysis agitans type. Often intermittent, it was brought out by emotional excitement and was as a rule of a coarse type involving the whole limb. Not infrequently it was unilateral. Ocular defects came next, having been met with in 11 cases of the series. The commonest disability was lack of convergence with paralysis of accommodation, but persistent squint, usually an external strabismus, lack of upward movement of the eyes, and nystagmoid movements had occurred fairly frequently. Disorders of sleep did not form a very prominent group in this series. Drowsiness during the day occurred in 3 cases—insomnia in 1, but in addition to these there were 3 cases which exhibited a reversal of normal sleep tendencies, diurnal somnolence to a very marked degree being followed by nocturnal excitement. All three cases were children and in each these symptoms were present during the acute stage of their illness and had persisted. The children went to sleep only in the early hours of the morning and then passed into what amounted to a state of coma, from which they were aroused with very great difficulty. Peculiarities of respiration had been noted in 3 cases. In one, that of a girl aged 20, about three months after the acute illness there developed an attack of dyspnoea which lasted for about three weeks; she improved for a few weeks and then remained much as before; her respirations were 36 per minute, the pulse rate 80; these respiratory troubles had now ceased and the girl was in active employment, quite recovered. A second case exhibited a type of respiration which, although not of the true Cheyne-Stokes type, at times seemed to approximate

to it, while the third had developed a most peculiar respiratory tic, in which the mouth was opened widely and usually towards one side and the platysma on that side thrown into contraction. There was no gasping inspiration accompanying this movement, but the patient said he did it in order to get his breath. He had no dyspnoea and his respiratory rate was normal. A peculiar sequel which Dr. Hinds Howell had noted in a number of the cases was marked seborrhoea, of the face and scalp more particularly. He had notes of it in 6 cases, but he thought its incidence would have been noted more frequently if his powers of observation had been more acute. An abnormal appetite had been noted in three of the cases, choreiform movements in one, and a definite hemiplegia—moderate in degree—in one.

He did not think that a recapitulation of symptoms occurring as sequels to encephalitis lethargica was of much interest unless they led to some advance in our knowledge of the functions of the brain. He did not doubt that the disease, the sequels of which they were considering at that meeting, had given a stimulus to the study of paralysis agitans, and had thrown a good deal of side-light on the pathology of that disease. It was to be hoped that from this they might obtain more accurate information than they possessed at present with regard to the physiology, and indeed the exact anatomical constituents, of the extra-pyramidal motor system.

Dr. ANTHONY FEILING (London) said that the subject for discussion, the sequelae of epidemic encephalitis, offered so wide a variety that choice of any particular branch of it became a matter of difficulty. Hence, in the short time at his disposal he confined himself to two aspects only of the very important sequelae of this disease. First, in regard to ocular palsies. Ocular palsies of some kind, both of the intrinsic and extrinsic muscles of the eyes, were well recognized as one of the more common and indeed diagnostic events in the acute disease. Netter, for example, placed them amongst the typical triad of symptoms, the others being fever and somnolence. But while so important in the acute phase, they were less common as a final sequela. Not that they did not often persist for a considerable time, several weeks or even months indeed, nor that they might not occasionally remain long enough to deserve the title of sequela. Dr. Feiling had observed many cases in which ocular palsies had occurred; in the majority they persisted for some time, varying from a week or several weeks to six months, but eventually the greater number recovered. A small residuum, however, had remained and it was to these particularly that he would direct attention, for they might offer considerable diagnostic pitfalls if the true origin of the condition were overlooked. Changes in the pupils and in the pupil reactions were well accepted as not uncommon sequelae. Inequality in size was frequent; a diminution in or a loss of the power of accommodation was still more common. Loss of the reaction to light in the pupils less often occurred. On the whole it might be said that the changes in the pupils were sufficiently common to constitute on occasion a suspicion of other diseases, and notably tabes or general paralysis of the insane. If for this reason only, they should be noted. Paralysis of the extrinsic muscles of the eye formed a not uncommon residuum. Any muscle might be affected. Thus, unilateral or bilateral ptosis, usually incomplete, or a paralysis of one or other external rectus, was perhaps the most common. Defective upward or downward movement of the eyes might also be encountered. Cases presenting these symptoms, especially when the power in the muscles varied somewhat from day to day, might easily be mistaken for myasthenia gravis. Indeed, their aspect was often curiously suggestive of that disease. One case of his own was so striking an example of this resemblance and showed such remarkable variations in the ocular palsies that a short account of it might be interesting.

A woman, aged 29, had an attack of encephalitis in September, 1920, with an abrupt onset of headache, vomiting, and diplopia. In October, 1920, she showed a divergent squint in both eyes with paresis of both internal recti. In November, 1920, right ptosis was present, as well as the paresis of the internal recti; in December this ptosis was still more marked. At the end of December, 1920, the ptosis of the right eye had gone, but the downward movements of the right eye were very defective. In January, 1921, ptosis of the left eye appeared, with defect in the upward and downward movements of the left eye; the two internal recti were still paresed. In March, 1921, no ptosis was present in either eye; there was weakness of the left internal rectus only. In May, 1921, there was right ptosis again; in June, 1921, the right ptosis had gone and there was slight left ptosis. In July, 1921, there was marked left ptosis and weakness again of both internal recti. In September, 1921, the only defect was a failure of the two eyes to converge. The same state was found in January, 1922. In November, 1922, the right ptosis had returned and was especially marked when the patient was tired; at this time, twenty-six months after the original attack, the pupils were equal and reacted well to light, but failed to converge or to accommodate.

So remarkable a persistence and variability of the ocular palsies was an observation of importance. Had it not been for the very definite history of the original attack a diagnosis of myasthenia gravis would almost certainly have been made. The occurrence of the Parkinsonian syndrome or the so-called symptomatic paralysis agitans was now familiar to all neurologists, but even yet its frequency and the gravity of its prognosis were, perhaps, hardly realized by the profession at large. The characteristic symptoms might appear during the acute phase of the disease, so that no definite latent period could be said to exist. On the other hand, a number of cases, and these of many different types, appeared to recover from their first symptoms, and later at a very variable period, from a few weeks up to two or even three years, or perhaps longer, slowly developed the typical picture. It was, of course, a matter of the greatest difficulty, if not of impossibility, to fix the exact time of onset of symptoms in the slowly progressive cases. Usually a slowness of movements was the first abnormality to attract attention. Since that particular syndrome was now so well known, he would not waste time by dwelling in detail on its various components. In his own experience the following were the chief points of differentiation between it and the ordinary or senile form of paralysis agitans: (1) The age of the patient. Many cases of the post-encephalitic form occurred in quite young persons, even in children, while the ordinary disease was very rare under 40. (2) The incidence of the symptoms was usually somewhat different. Thus, the characteristic tremor was often lacking in the post-encephalitic form, at least for a considerable time. On the other hand, the rigidity of the limbs and trunk, in fact the general immobility or "woodenness" of the patient, was often an earlier and a more troublesome feature. (3) Slight or what have been called "fragmentary" conditions of rigidity were more common in the post-encephalitic cases. Thus the rigidity might be practically confined to the face or neck or to one or other of the limbs for a longer time than was usual in the ordinary senile form. (4) Sialorrhoea, or excessive salivation, was sometimes a very characteristic symptom in the post-encephalitic cases. A point which he wished to emphasize was the difficulty in prognosis in these cases. In the first place—and apart from those cases where the characteristic picture of paralysis agitans appeared during the acute phase of the disease—they were confronted with the problem of deciding what cases were likely to develop the syndrome. For it had been shown to follow almost every variety of the acute illness. Indeed, unless complete recovery seemed to take place, and that fairly quickly, it would appear that they were not justified in excluding the possible development of Parkinsonism under a period of three years. And in the second place the prognosis of the developed state of Parkinsonism was equally difficult. Some cases seemed to reach a maximum and to remain there for some long time, with subsequent slight improvement. Others seemed to remain stationary. But many unfortunately ran a steadily progressive downhill course, terminating in early death. Criteria on which an accurate forecast might be based were at present lacking. Personally, he had been impressed by the bad results in those cases, especially in young people, where the symptoms had appeared slowly and insidiously, and where there seemed to have been a long period between the acute attack and the manifestation of the typical picture of paralysis agitans. The reason for that serious outlook seemed to be the persistence of the virus in the brain on the one hand, and on the other the advanced degenerative changes which had been found to occur in the blood vessels.

Dr. DOUGLAS MCALPINE (London) discussed some points in the pathology of late encephalitis lethargica. In reviewing the literature he had found mention of only fourteen autopsies on cases of the Parkinsonian syndrome following encephalitis lethargica. The most striking fact in the various findings, and one which was common to all the cases, was a destruction varying in amount of the cell of the substantia nigra in the mid-brain. Inflammatory changes were also found in other parts, such as basal ganglia, but in nine out of the fourteen cases it was definitely stated that the changes in the substantia nigra were the most prominent feature. He had had the opportunity of examining the brains of two cases.

CASE I.

The first case was that of a man, aged 41, who had one definite attack of encephalitis lethargica in May, 1921, followed by paralysis agitans. When seen in September, 1922, he showed a very advanced degree of this condition. After being two weeks in hospital he suddenly became acutely ill with progessive pyrexia and polypnoea; no physical signs in the chest were found to account for this marked increase in the respiratory rate. He died within forty-eight hours. As a control for the histological findings a brain from a man of the same age who died as a result of an accident was used and was treated in precisely the same manner. The findings were briefly as follows: The cerebral cortex was normal except for general capillary dilatation. There were no changes of note in the putamen of the lenticular nucleus, nor in the caudate nucleus except occasional perivascular infiltration with round cells. The large motor cells of the globus pallidus for the most part were normal except that they stained poorly and showed an absence of the usual chromophyllic staining. A similar appearance of the cells was present, however, in sections from the normal control and probably depended upon faulty fixation. The cells in ten connective fields were counted, and this was also done in sections from the corresponding blocks of the normal control. Two different levels were taken; one from the middle of the globus pallidus and the other towards its lower end. In each case the cell count from the case of encephalitis lethargica exceeded that from the normal control. A few of the vessels in the globus pallidus showed well marked perivascular infiltration; those situated in the anterior half of the globus pallidus showed calcification; further reference would be made to that later. The only changes of note in the thalamus were quite recent perivascular haemorrhages in the neighbourhood of the third ventricle; these were also found in the neutral portion of the mid-brain. Sections stained by Weigert-Pal showed no degeneration of fibres connecting the basal ganglia and subthalamic region. The mid-brain was cut in serial section, and sections showed that the main incidence of the disease had fallen on this region and particularly on the pigmented cells of the substantia nigra on either side. These were reduced to a very small fraction of the normal number; the few cells which remained showed depigmentation, eccentricity of nucleus, ballooning, and other degenerative changes. The area normally occupied by the substantia nigra was filled with scattered masses of pigment. In contrast to this picture it might be added that the pigmented cells of the local ceruleus, situated also in the mid-brain, were quite normal. The vessels of the mid-brain were more affected than elsewhere, showing perivascular haemorrhages and infiltration with round cells. Macro- and microphages of glial origin were plentiful and many contained pigment; these could be traced to perivascular spaces of capillaries. The pons, medulla, and spinal cord showed no changes of note. Weigert-Pal section of the pons, medulla, and cord showed no tract degeneration.

CASE II.

The second case was that of a woman, aged 68, who was well until an attack of influenza in January, 1920, characterized by general pains, marked insomnia, and paresis of accommodation. Some months later symptoms of paralysis agitans appeared, affecting the limbs on the left side. In January, 1921, and again in February, 1922, she had what her friends described as a "stroke," in which she lost the use of her legs, but she recovered fairly well after each attack. When seen in January, 1923, she presented a picture of advanced paralysis agitans without tremor. There was also evidence of pyramidal involvement on left side. A point in favour of a previous attack of encephalitis lethargica was the absence of the reaction of the pupils on accommodation, while the reaction to light was only slightly impaired. Wassermann reaction was negative. After a short time in hospital the patient became acutely ill; temperature and respiration rate progressively rose and she died seventy-two hours later. No adequate explanation could be found for the marked increase in the respiratory rate. The main points in the histological findings were as follows: (1) marked general arterio-sclerosis; (2) haemorrhages in basal ganglia on the right side, neither of them recent. One was situated anteriorly at the junction of the putamen and globus pallidus, the other in the thalamus encroaching on the right internal capsule; (3) round-cell infiltration in some of the vessels in the basal ganglia and subthalamic region with calcification of several arteries and arterioles in the anterior half of the globus pallidus; (4) recent perivascular haemorrhages, similar in all respects to those found in the first case, in those parts of the thalamic and subthalamic region which adjoin the third ventricle; (5) a normal substantia nigra on either side; (6) Weigert-Pal sections showed a slight but definite double pyramidal tract degeneration.

Dr. McAlpine did not wish to stress this case as one of post-encephalitic paralysis agitans with a normal substantia nigra, because the two large haemorrhages in the basal ganglia were evidently due to arterial disease and were plainly not due to encephalitis. The mode of death in these two cases was strikingly similar—namely, progressive pyrexia and polypnoea. Madame C. Levy, in her recent book on the sequelae of encephalitis lethargica, mentioned this mode of death in four cases of advanced post-encephalitic paralysis agitans. The symptoms suggested an involvement of the respiratory centres, but in neither of his two cases were any changes found in the medulla sufficient to account for the symptoms; it seemed more probable that the recent haemorrhages into the perivascular spaces, present in both cases and similar to those found in acute stages of the disease, indicated an acute flaring up of the disease. Another point to which he wished to draw attention was the persistence of subacute inflammatory changes, such as round-celled infiltration around the vessels in cases dying eighteen months or more after the acute stage. Judging from the findings in those cases of encephalitis lethargica paralysis agitans reported in the literature and from the changes found in the first of the cases which he had described it seemed justifiable to assume that the symptoms were probably due to destruction of the cells of the substantia nigra in a large proportion of cases.

He wished finally to mention a few observations that he had made on the occurrence of calcification in the brains of those dying from encephalitis lethargica. Buzzard and Greenfield in 1918 first described in the case of a young woman, aged 25, who died six months after the original attack, deposits of calcium salts in certain vessels of the cortex and basal ganglia. Durch in 1921, in 12 out of 15 fatal cases of encephalitis lethargica, the ages ranging between 20 and 60 years, found calcification not only in the vessels' walls but also in globules lying free in the supporting tissue and even invading the nerve cells. These changes were much more pronounced in, though not confined to, the globus pallidus. In the first of the two cases Dr. McAlpine had described he found well marked calcification in certain vessels in the globus pallidus. Subsequent examination of the two other late cases and two who died in the acute stages showed that the calcification was limited to the anterior half of the globus pallidus, an area which was supplied by internal striate branches from the middle cerebral artery. No similar involvement of any vessel outside this area was found in any of the five cases. From a study of the various sections from the different cases, it had been possible to show that the earliest alteration in the vessel wall might be either a deposition of fat globules in the adventitial sheath, or a hyaline degeneration mainly affecting the media. Calcium salts were then deposited either between the adventitia and the media or in the media itself; the calcium first appeared as fine granules which coalesced to form comparatively large plaques. Arteries and capillaries of all sizes might be affected; the veins were usually spared.

In this limited area of the globus pallidus were found in all cases globules lying free in the supporting tissue, which showed varying degrees of calcification. The earliest stages of these seen in sections stained with Scharlach R consisted in the formation of droplets of fat, lying free in the supporting tissue and also aggregated around the small vessels and capillaries; a few of these might show a darkly staining centre or nucleus due to commencing calcification. The second stage seen in sections stained with haematoxylin and Van Giesen consists of brownish staining bodies, occurring singly or in fused irregular masses, 4 to 6 μ in diameter. Finally, these globules might become completely calcified and were seen as blue-black granules or globules in size varying from 1 μ upwards, lying scattered about or invading the vessel walls. No calcification of nerve cells was observed. This process of calcification showed itself at all stages of the disease. In a young man, aged 20, who died on the fourth day of the disease, in addition to the characteristic acute histological changes, definite calcification was found in the vessels of the anterior half of the globus pallidus, and in a second case similar changes, though more advanced, were found. As controls he had examined this region of the

brain in three cases dying from other causes, and could find no calcification, but in the only two cases of idiopathic paralysis agitans that he had examined well marked calcification was present in this area. In the latest monograph by the Vogts, who illustrated a different number of clinical and pathological conditions due to disease in the basal ganglia, mention was made of only one case showing calcification of vessels and globules such as Dr. McAlpine had described. This was a case of Westphal's, a woman who died in 1919 after a seven weeks' illness, characterized by athetotic movements and later rigidity, dysphagia, dysarthria, retropulsion, etc. The history and microphotographs strongly suggested an attack of encephalitis lethargica, although no mention was made of this in the text.

It seemed difficult to understand how calcification could occur so rapidly as in the two cases he had mentioned. Emrys-Roberts and Haig in a recent paper described a somewhat analogous process in fatal cases of fulminating diphtheria and septicaemia. They mentioned the occurrence of fatty or lipoid globules in the heart muscle of such cases, which became deeply pigmented; they attributed this change to the substitution of the fat by an altered lipochrome. It was reasonable to suppose that in encephalitis lethargica the circulating toxin produced degenerative changes in the vessel walls and that calcium salts were attracted to these parts. He had no explanation to offer for the selective action of this process on the anterior half of the globus pallidus. These changes, though of a considerable interest from a histological point of view, could, he thought, be held responsible for the production of symptoms. The lumen of the affected vessels seemed to be little interfered with, nor was the presence of the globules accompanied by any degeneration in the large motor cells of the globus pallidus. In conclusion, he wished to mention the help and kindness afforded to him by Dr. J. G. Greenfield, who placed certain of the material at his disposal.

Dr. C. P. SYMONDS (London) said that, as Dr. Buzzard had remarked, there was in this disease no constant relation between the severity of the sequelae and that of the original illness. This accounted for the fact that many patients came to them for the after-effects of the illness in which the true nature of the original attack had not been recognized. In these cases, therefore, it became necessary to make the diagnosis in retrospect. As an example he quoted the case of a young married woman whom he was asked to see as a probable case of dementia praecox.

For the past few months she had been growing more and more apathetic, would sit still all day apparently staring in front of her, and had ceased to take any interest in her children or her home. On examination the patient presented the characteristic facies and posture of paralysis agitans. In her mental condition was found a state which Dr. Symonds believed was characteristic of these cases—profound apathy and loss of emotion, together with preservation of the intellectual processes. She showed no spontaneous interest in her surroundings, nor would she speak unless directly questioned; her responses were rational; she was correctly oriented, and perfectly cognizant of what was going on about her. The history in this case revealed no sudden febrile illness. Nine months previously she had complained of headache and general malaise, and had felt herself becoming increasingly drowsy, so that she would actually fall asleep over her housework and had sometimes to be awakened for meals. In spite of this she had not gone to bed, nor had she sought medical advice. The period of drowsiness and malaise lasted in all for about six weeks, and was succeeded by distressing insomnia. She had never felt completely herself since the beginning of the illness, but had only noticed the commencement of stiffness and slowness of movements about three months after the onset. Since then it had been progressing.

Dr. Symonds had seen many such cases of what might be called the ambulatory type, in addition to those in which the original attack had been put down to influenza or in children sometimes had been provisionally diagnosed as chorea or meningitis. In cases that presented such gross sequelae as the Parkinsonian syndrome, a retrospective diagnosis was not, as a rule, difficult when the full history was elicited. In others whose symptoms were less clear-cut the diagnosis might be extremely difficult.

In March, 1921, he saw a blacksmith, aged 45, who complained simply of general lassitude and increased fatiguability. On examination he found that his pupils were unequal, and one of them failed to react either to light or in accommodation. He had nystagmoid jerkings of the eyeballs and his tongue was protruded to one side. He denied venereal disease, and the Wassermann reaction was negative in blood and spinal fluid. Inquiry elicited that at Christmastime, 1920, he had been away from work for a week with complaint of headache and malaise. During that time he felt shivery and would sit by the fire, but he had not gone to bed or thought it worth while consulting a doctor. For one day he had had occasional double vision. This history appeared to warrant the diagnosis of encephalitis lethargica, and Dr. Symonds's experience of the disease led him to the opinion that it was unsafe to give a good prognosis until the end of six months from the date of the original illness. In June, 1921, the patient began to complain of gnawing pains in the left arm and leg, and these were shortly followed by involuntary movements of a coarse irregular type, chiefly involving the muscles of the left shoulder girdle. This patient had since this time been continually under observation. The involuntary movements at first progressed and were at their worst in January, 1922. Hyoscine taken regularly by the mouth, together with bromide, appeared to have a definite effect in controlling them to some extent. During the last two years there had been slow but steady improvement, and he was now practically well. Throughout his illness he had been able to continue at his work, albeit with some difficulty.

His experience had been that, as in this case, involuntary movements as a whole tended to disappear after a lapse of months or years. He would, however, except tremor of the Parkinsonian type, which appeared to persist indefinitely. With regard to the prognosis, it was important to discover if possible what was the limit of the latent interval which might elapse between the original illness and sequelae. He had seen one case in which the Parkinsonian syndrome developed after a lapse of two and a half years. During this period, however, the patient could never be said to have made a complete recovery. In the original illness lethargy was the main symptom. Later insomnia and nocturnal restlessness (the patient was a boy of 15) became exceedingly troublesome. The boy's character also showed signs of deterioration. His own impression was that if the patient in the original illness recovered his physical and mental health and maintained that recovery for a period of six months, he might be regarded as safe from further trouble. Finally, in discussing the symptomatology of this disease, he thought perhaps that they paid more than a fair share of attention to the involuntary movements. He called attention to the great variety of sensory disturbances of which these patients complained. The somatic pains had already been referred to by other speakers. Dr. Hinds Howell had mentioned that in one of his cases there occurred gasping movements over which the patient had voluntary control. Dr. Symonds had met with cases in which the patient had made movements of a similar nature, and had explained them as being due to a sensation of impeded respiration and suffocation of which he had tried to rid himself by energetic deep breathing. Other instances of that type had been a man who had a perpetual sensation of nasal obstruction which impelled him to be constantly blowing and sniffing, and a woman who, even in the early stages of her illness, complained chiefly of a sensation of fullness and tenesmus in the rectum, for which she was constantly demanding the bed-pan, although her bowels were emptying normally and physical examination revealed no local cause. Symptoms of that nature were of particular interest in relation to similar complaints made by patients of the so-called neurotic type. They had to ask themselves whether there might not be a physical basis for such symptoms in minute lesions of the viscero-sensory nervous centres.

Dr. H. J. MACBRIDE (London) said that a short clinical contribution to the discussion was difficult because of the wealth of clinical material offered by this disease. The discussion was on the sequelae of encephalitis lethargica, but how far were they justified in placing many of these cases under the heading of sequelae? Were they not, in many cases, dealing with a still active infection rather than with a merely consequent condition? Several of the cases he had seen recently had been much more drowsy many months after the onset of the disease than during the early days of their illness. And again in some cases the symptoms had markedly altered during the so-called post-encephalitic stage. This was well shown in one of the cases which he described later. Economo found *post mortem*, in a chronic case, quite recent patches of inflammation. So that both the clinical and pathological conditions went to show that the active process might continue for years. Further, they knew that a definite recrudescence or relapse had occurred in some patients. At

what stage, then, could they say that the virus of this disease was incapable of further activity? During the last two years Dr. Macbride had had the opportunity of examining at the National Hospital over 60 cases of what had been called post-encephalitis lethargica. These cases could be divided roughly into two sections: (*a*) by far the larger group—those showing a similarity to the paralysis agitans syndrome, and (*b*) those showing other miscellaneous symptoms. It was to a particular group from the latter section that he wished to devote his attention. It comprised three cases, each of which showed a condition closely allied to torticollis.

CASE I.

A young woman, aged 28, had an attack of encephalitis in 1920, with marked drowsiness lasting several weeks, and ocular trouble followed shortly afterwards by the movements which she at present has. The movements consisted of an irregular spasmodic turning of the head to the right, with a slight forward and shrugging movement of the right shoulder. Each spasm lasted about one or two seconds. Accompanying these head movements, though not always, were movements of extension and internal rotation of the upper limbs with wide separation and extension of the fingers. The extension movements of the left arm were sometimes replaced by a movement of flexion, with flexion of the fingers. The lower limbs were usually unaffected, though there were slow movements of them, as well as of the upper limbs, apart from the head movements. The movements of the extremities resembled those of torsion spasm, except that the same movement was often repeated. All reflexes were normal and no Parkinsonian features were present. The accommodation convergence synkinesis was absent.

CASE II.

A young woman, aged 31, about a year before had an illness which she called influenza and in which she was very drowsy for several days. This was followed by side-to-side movements of the head, more to the left than to the right. These movements had continued up till the present time. The patient now had the head constantly inclined to the right with the chin very slightly turned to the left and the occiput approximated to the right shoulder, while this shoulder was slightly higher than the left. Side-to-side head movements of small amplitude were continually present while she was erect, but ceased in the recumbent position. While she was standing there were also regular up and down movements of the whole body, at a rate of about 60 to the minute. Reflexes were normal.

CASE III.

A young man, aged 28, had an attack of encephalitis lethargica in 1921, followed by the paralysis agitans picture. This state continued for many months, then his condition became that which was found on readmission to the National Hospital last year. The mask-like features had entirely disappeared, as also had the paralysis agitans tremor, and his complaint was of head movements; they consisted of spasmodic forward movements of the head with elevation of the left shoulder and slight turning of the chin to the right. Associated with them were deep nasal inspirations. Reflexes were normal except for the left plantar which was extensor in type.

These cases were interesting not only from the point of view of the disease under discussion, but also on account of the light they might throw on other conditions. The symptoms following on encephalitis lethargica could be grouped into well known syndromes, yet the knowledge of these syndromes had allowed them to draw very few conclusions as to the pathology of this disease. They might look at the matter from the reverse side and ask themselves whether their study of encephalitis lethargica had allowed them to draw any conclusions with regard to the syndromes which occurred in consequence of it. As far as paralysis agitans was concerned it had merely taught them that such a condition might have an infective origin. With regard to torticollis he submitted that it gave additional ground for believing that some cases at least had their basis in an organic lesion of the brain. Dr. Macbride said that he was much indebted to Dr. James Collier for permission to quote the above mentioned cases.

Dr. W. A. POTTS (Birmingham) said that the theory of temporary oedema in certain regions of the brain seemed to explain the rapid recovery which occurred in some cases. For instance, a young woman on the first day was only slightly ill, on the second she was in a state of stupor, not able to move, not speaking or taking food; on the fourth day she was up and dressed, and almost quite well. She recovered rapidly and had no sequelae. Dr. Hinds Howell's interesting group of cases prompted Dr. Potts to ask if psychological analysis had been tried, not so much with a view to treatment in itself, but to see if it pointed to any form of treatment towards which the patient's mind had an instinctive call. As regards treatment, might not the pathological findings put before them point to citric acid as a remedy in the early stages to diminish the calcification observed? In the same way did the fat globules described point to the necessity of administering adrenaline hypodermically? He had made use of adrenaline injections, and also of influenza vaccines at an early stage, and thought them useful, but he had not had enough cases to justify a decision. There was a special group of cases occurring in pregnant women, in whom the symptoms were sometimes mistaken for threatened eclampsia, with the result of treatment sometimes being carried out to induce labour. Such a procedure happily was not necessarily disastrous, because, curiously enough, the prognosis in pregnant women appeared to be good.

Dr. D. N. HARDCASTLE (London) wished to draw attention to the symptom of depression which was largely stressed by Continental and American writers, and also mentioned by Dr. Hinds Howell. The question arose, was this depression the direct result of (1) organic change in cerebral cortex (example, the depressed general paralytic), (2) cerebral anaemia, as found in some types of arteriosclerosis, or (3) was it the patient's mental reaction to the knowledge of the severity of his illness or its crippling effects? The second point he wished to raise was, what was the cause of the reversal of the "sleep-wake" cycle? Was this to be explained on an organic basis or was it a psychological phenomenon? In support of the view that there were superadded to the organic conditions symptoms that were psychogenetic, there were the patients with tremor dreams and night starts, feelings of inferiority and lack of self-confidence, and others, such as the girl mentioned by Dr. Hinds Howell, whose reactions were typical of the psychoneuroses. It was with these facts before him that while doing everything to ameliorate the purely organic aspect Dr. Hardcastle was attacking the psychological aspect by means of psycho-analysis.

DISCUSSION ON THE PROGNOSIS OF PSYCHOSES OCCURRING DURING ADOLESCENCE.

OPENING PAPER

BY

D. K. HENDERSON, M.D.,
Physician Superintendent, Glasgow Royal Mental Hospital, Gartnavel.

THE prognosis of mental disorders occurring at the adolescent period is a topic of tremendous magnitude and of far-reaching importance. It is only limited by the application and meaning we give to the word "mental." For the purposes of this paper, and in order to limit the subject and keep the discussion within more or less well defined limits, I have made an attempt to formulate my views of prognosis in regard to those types of mental reaction which ordinarily are termed the dementia praecox type. While this is so, and although this paper deals essentially with hospital cases, yet I trust my remarks may be held as even more applicable to potential cases than to the completely dissociated ones.

I do not know of any more tragic event than the occurrence of a mental disorder at the time of life when the period of childhood training ceases, and life with all its possibilities seems to be opening up. Until the development of mental symptoms the boy or girl affected may have shown a capacity for work, and an intelligence far in advance of the average. On account of this, parents, teachers, and friends have all predicted and looked forward to a bright and successful future, and in consequence these symptoms, which in other circumstances might have given cause for uneasiness, are all too frequently glozed over and explained away. It thus happens that the early preventive period becomes lost. Who is not familiar with colleagues who up to a point have seemed

to carry everything before them, and then suddenly have dropped out and been heard of no more?

The adolescent period, then, is an epoch in a person's life fraught with possibilities for good or evil development; it is a period of plasticity and elasticity, a time when good or bad habits are most easily cultivated, when a step is taken either in the right or wrong direction, and when adjustments and adaptations are most easily effected. Everyone who thinks about it realizes that life all through is a process of adjustment, a question of balancing aright the different forces in one's nature, but it has been less generally recognized that mental disorders of whatsoever nature can be studied in exactly the same way. An attack of what some people commonly call insanity is nothing more than a reaction of the central nervous system towards a definite difficulty either of physical or psychic origin. I feel that our attitude in regard to prognosis in general must be based very largely upon the views we hold regarding the mechanism of the disorder, and I wish very briefly to focus the discussion in the first place on some of the main ideas which have been expressed in regard to the evolvement of the adolescent psychoses.

Roughly, cases can be considered as physiologically determined and as arising on the basis of organic visceral disease, or else we can utilize the broader psycho-biological conception of adaptation and adjustment. In 1896 Kraepelin formulated his views, and on the basis of symptoms he differentiated the two large groups of manic-depressive psychosis and dementia praecox—the former carrying with it a good prognosis, and the latter a grave one. He, however, qualified this latter statement by asserting that upwards of 15 per cent. of his katatonic cases made a good recovery. In some ways this differentiation on the basis of symptoms into a prognostic-diagnostic grouping was a master stroke, because it at once stimulated the more careful analysis of the individual cases, and allowed groups of cases to be compared. Symptoms, however, are always very unsafe, and often are more or less arbitrary, depending on the setting in which they occur, so that a division of clinical groups on such a basis has tended to make the problem of prognosis and diagnosis too cut and dried, and although it is true that in general we may say manic-depressive is a benign reaction type, and dementia praecox a malignant one, yet most people with experience realize that there are considerable exceptions on either side. As a result of the above differentiation, the opinion gained ground that, irrespective of treatment, the manic-depressive cases would get better, and, on the other hand, that cases of the dementia praecox type were outside all therapeutic endeavour. Kraepelin's conception, then, although formulated in a very useful way, has been unfortunate, because it has tended to breed a pessimistic spirit, and not infrequently one has heard the question of treatment dismissed by the statement "Oh, he is a praecox."

In 1911 Bleuler—principally, it seems to me, on account of the fact that many cases showing a dementia praecox tended to become better—drifted away from the Kraepelinian nosology, and used the term "schizophrenia" to designate all cases of so-called functional brain disturbance, with the exception of typical manic-depressive cases. He laid it down that all such conditions as dementia praecox, paranoid states, hallucinoses, prison psychoses, and conditions which might simply be referred to as abnormalities of make-up, were due to one underlying disease process. Mott, of course, explains this on the basis of impaired functioning of the reproductive glands. Considering the wideness of the group described as schizophrenia by Bleuler, it is not to be wondered at that only approximately 22 per cent. show a severe grade of deterioration; but, in addition, he maintains that in the others there is always a certain residual defect which may only amount to a lack of insight. More recently, working from the same point of view, and apparently with very much the same type of case, McCarthy, in his discussion of dementia praecox and the adolescent psychoses from the organic visceral viewpoint as regards prognosis and therapy, divides his cases into the unfortunately termed groups of (*a*) degenerative, and (*b*) non-degenerative. The latter curable group is subdivided into:

(1) Those whose toxic factors were dependent on pulmonary disease at the first development period, leading to constitutional and endocrine disturbances at the adolescent period.

(2) The syphilitic group, when early acquired or inherited syphilis produces a similar reaction as in (1).

(3) Steadily progressive infections in the adolescent period, belonging in a general way to the focal infections, and leading to reactionary states in the endocrine field.

(4) Non-determined infections with thyroidal disturbances.

(5) Stress reactions in the moron group, due either to infection or overload, leading to a praecox syndrome.

McCarthy's work and results are based on cases seen in private practice, but he believes that a very large proportion (he does not give figures) of the cases of mental disorder occurring at the adolescent period get well, and he considers that the field of the psychoses of adolescence is much broader than is embraced by the terms "manic-depressive" and "dementia praecox."

Cotton and his co-workers at Trenton have been working on much the same principles, and on the basis of treating the condition from the point of view of focal infection they have reported from 60 to 80 per cent. of recoveries. The work of what might be termed the Trenton school has been adversely commented on by Kopeloff and Cheney, and, despite the glowing reports which have been published, the work done and the results accomplished must be accepted with considerable reservation. There is no doubt, however, that the attempt to benefit dementia praecox and adolescent conditions by stressing the existence of organic visceral disease is a side which demands attention and carries with it a certain hopefulness, but it is not entirely satisfying, and I do not believe that it is a complete explanation. I believe that a wider conception altogether is necessary, and although in every case we must keep in view the possibilities of focal infection, of endocrine disturbance from whatsoever cause, yet we must also attempt to estimate the psychic factors and to bring the illness into line with the personality as a whole. This viewpoint has, of course, been particularly emphasized and illuminated by Freud, Jung, and other workers belonging to the psycho-analytic school. They have shown that the varied forms of psychic disturbance in the way of hallucinations, delusions, and symbolical interpretations are based largely on complex factors which have not been in harmony with the individual's personality. I wish, however, particularly to draw attention to the dynamic psychological views of the American school, led by Meyer and his co-workers and pupils. Meyer has shown in his paper on the fundamental conceptions of dementia praecox that "the older symptomatic considerations have very largely failed to bring out the most vital factors." He has emphasized the importance of considering mental illness in terms not of clean-cut groups but of reaction types, and of attempting to understand the mechanism of the disorder. He has shown how every individual is capable of reacting to a very great variety of situations by a limited number of reaction types, which he has attempted to characterize.

"The full, wholesome, and complete reaction in any emergency or problem of activity is the final adjustment, complete or incomplete, but at any rate clearly planned, so as to give a feeling of satisfaction and completion. At other times there results merely an act of perplexity or an evasive substitution. Some of the reactions to emergencies or difficult situations are mere temporizing, attempts to tide over the difficulty, based on the hope that new interests crowd out what would be fruitless worry or disappointment; complete or incomplete forgetting is the most usual remedy of the results of failures, and just as inattention and distraction correct a tendency to overwork, so fault-finding with others, or imaginative thoughts, or praying, or other expedients, are relied upon to help over a disappointment, and, as a rule, successfully."

Now, acting on this conception, in every case an attempt should be made to size up how satisfactorily or unsatisfactorily the individual has met what was in front of him. In many cases the reactions no doubt may be modified, aggravated, or accentuated by physical factors; but such a method of approach means that every possible point of view is taken into consideration, and, furthermore, an attempt is made to modify whatever is harmful. If we look at our cases in this way, then we need not hesitate to diagnose such a patient as a dementia praecox type of reaction, for

that will only draw attention to the fact that the individual has not reacted in an entirely satisfactory way, has either temporized or has shown some peculiarity or oddity of speech or conduct, but it does not necessarily follow that the prognosis is altogether bad. Hoch and Amsden in their studies of the personality have emphasized the same point of view, and they have shown how a candidate for such a condition as dementia praecox—the dementia praecox type—tends to get out of touch with reality, and to suffer from what has been aptly enough termed the shut-in personality. Such persons are asocial, lacking in aggressiveness, ultra-conscientious, diffident, prudish, and so on. If this argument is accepted, then your prognostic outlook will become entirely altered, in so far that one thing will not be stressed at the expense of another, but each case will be looked upon as exhibiting certain individual reactions which must be considered in relation to the personality, and all the factors—heredity, environment, temperament, toxic-infective agents—must be taken into account in all their bearings. We need not in future consider whether all psychoses at the adolescent period are manic-depressive or dementia praecox, but we must attempt the much more difficult matter of trying to understand the individual reaction type.

A medical student, 21 years old, on January 16th, 1922, was admitted to the Glasgow Royal Mental Hospital. His history, as obtained from his relatives, showed that for a number of months he had not been so well. In August, 1921, out of petty jealousy, he broke off a love affair, but the way he rationalized it was because he feared he might become like his father, who was suffering from paralysis agitans. In September, when examined for life insurance, he was told that one of his heart valves was not quite right. Following this he began to worry, feared that he might become mentally affected, and in October, when the winter session started, he complained of his head buzzing, could not concentrate nor apply himself to his lectures. As a result he gave up his studies, grieved about his prospects, thought that he might have to become a tramp, because he was not fit for anything else. A few days previous to his admission to this hospital he became excited and elated, showed a certain number of clang associations, but, on the whole, his vocabulary was limited, and he tended to repeat such phrases as "I am the only man in the world." Later this excitement became more marked; he tried to injure himself, and attacked the nurses by biting and striking. Following his admission, his condition was one of great excitement, the principal element being pressure of speech, interrupted from time to time by response to auditory or visual hallucinations, or by some impulsive act, which may have also been in response to hallucinations. His talk centred on a few themes, principally his health, the girl he loved, and his own accomplishments. He said, "I am on the stage. I am not Martin Harvey—Martin Harvey says I have no heart. Look at my heart, doctor, and see if I have one. It is a far, far better thing I do now," etc. At another time he talked of mesmerism, of his will-power, how he was going to buy a two-seater car, a house of his own, marry the girl of his heart, that he was a doctor, and had qualified when he was 21 years old. During his residence he continued for a period of time to be impulsive, to have spells of attitudinizing, of being negativistic, of not reacting to painful stimuli. Gradually, however, his interests were developed, he took part in what was going on, and, on the surface, made a fair recovery, although he never did acquire satisfactory insight.

An analysis of the family situation showed that there was a hereditary predisposition on both sides, and his brothers and sisters were all of a high-strung, neurotic type. His relatives described him as a normal, healthy boy, who did well at school, and, in addition, made friends, was excellent at games such as golf, tennis, cricket, and football. A friend, however, threw light on his case by emphasizing his shy, bashful, retiring nature, his silence in company, his reserved, solitary disposition, and the girl whom he was in love with is supposed to have encouraged him more out of pity for his solitariness than for any other reason.

The hereditary and constitutional and developmental factors, along with (*a*) his failure in his medical studies, (*b*) his father's illness, and his intimate companionship, (*c*) his refusal by the insurance doctor, and (*d*) his love affair, seem to have been the principal etiological factors. There was no evidence whatsoever of any abnormal organic bodily or toxic state.

His illness must, therefore, be looked upon as a faulty mode of reaction to a set of definite circumstances. It started with a petty jealousy because the girl in whom he was interested went out to golf with another fellow. In response, a feeling of inferiority and depression developed, and in consequence of this he became convinced that his life had been a failure; he wanted to die, he made actual attempts on his life, and later he attempted to compensate by expressing religious ideas, and identified himself with Jock Troup, the revivalist. Finally, there was a definite regression to an infantile, dream-like state, during which all his hopes were realized—he had a motor car, a home, Ada, and himself a doctor, who had qualified at the age of 21.

Taking all these facts into consideration, particularly the acute onset, the fact that despite a somewhat shut-in type of personality and ominous symptoms, he had had healthy outside interests, I felt that a good prognosis was justified, and if the etiological factors were kept closely in mind that a readjustment could be brought about. The result justified this, because although he did not acquire insight, yet his compensatory mechanism was built up, his interests were developed, and his concentration and application have so far recovered that he has been able to start engineering.

Another case is that of a school teacher, who had always been shy and retiring, very sensitive, and ultra-conscientious. She was too serious-minded, had great ambition in regard to making herself a success at her work, and was essentially a "plodder" rather than an imaginative, romantic person. Her life was devoted entirely to her work, she had no hobbies, no outside interests, was afraid of boys. She was greatly interested in religious matters, and at one time wished to be a missionary. Her illness dated back for two years previous to admission to hospital, and is supposed to have been the result of a very heavy class, with arduous work and much preparation. She seemed tired, became more solitary, did not make any spontaneous remarks, would sit by the fire doing nothing. In June, 1920, about six months previous to admission, her great friend, a teacher, died suddenly. The patient had been greatly attached to her, and was so upset by her death that she was given leave from school for a period of two weeks. She herself had often spoken of her friend's words as being "like food to her." Since that time she was never quite the same. She felt that her soul was dead, that God had departed from her. On one occasion she woke suddenly, complaining of "feeling funny," said that there was "something there," pointing over her left breast. She gradually became more dull, unstable, tense, and frightened. Her dullness increased, she had crying and excitable spells, said that someone within her was speaking, but there was no history of any actual hallucinations. The patient complained of being depressed, and had peculiar bodily sensations, such as that her brain was tired out, that she had no initiative, that she could not interest herself nor start an idea. On account of this, and on account of the fact that she was of school for short periods of time, she began to wonder whether the other teachers were not adversely criticizing her, whether her head was changed, her brain so affected that she might become insane, her personality different from what it used to be. Then a vague, dreamy kind of state developed, in which she felt that she "could go on walking and walking quite indefinitely, and never get tired"; but at other times a fear seemed to take possession of her, and she said, "Terrible moods come over me—it is in the nature of a fear. I don't know how to change them." This, she thought, must be due to her evil life; she should have had more interests; she should have thought more of her people; she had been too proud; she had avoided and despised her father—she felt ashamed of him because he spoke so loudly, and for a time she was afraid that he might go insane when he was worried over business affairs. In talking about the past, she told about how at times she felt that someone was laughing at her: "It was like torture; it is too late now to change—something in me seems quite dead; everything seems different. I feel as if my soul was quite dead because I am so wicked. I have no love for anyone; all my feelings are wrong—jealousy and things like that. I see everybody living, and I feel that life is gone." Her physical condition was poor. She was a pale, thin, sallow-complexioned young woman, with slightly prominent eyeballs. Her heart was slightly enlarged, and her pulse rate was 120. There was no tremor of her hands, and no enlargement of her thyroid gland. During her stay in the hospital she was able to give a very good account of herself, and described in detail the etiological factors. She felt that her work had been overmuch for her, and on account of this she lost interest. She wanted to be left alone, thought she was wicked. She also spoke about the death of her friend, and described this friend as a strong, self-reliant type of lady, just the very opposite to what she herself was. It was only a week or two after this lady's death that the patient felt so much worse. "I feel as if it was my head that was strange—as if the life were dying out of me—not out of my body, but somewhere else." It was following this that she experienced not a fear of death, but a wish to die, because it was "all such dreadful misery." Her illness, she felt, was not an illness in the real sense of the word, but it was more a defect of conscience; she said, "I am going on getting worse and worse, wickeder and wickeder. It is all inside me—I should have been worried—but I have no kind feelings."

The case was one in which we had to take into consideration (1) the hereditary factors, (2) her poor bodily health, (3) her difficult school work, and (4) the death of her friend, to whom she had been greatly attached. In such a case some people might emphasize the psychogenic factors, others the hereditary, or environmental, or exhaustive elements; but if we regard the case as a whole we at once see that the symptoms are merely the individual's way of reacting towards all of them, and we will be able to think of the case in terms of a biological reaction; furthermore, we will be able to work with it in an understanding way, so that her various interests can be built up. Again, if the case were to be considered merely for the purpose of grouping, one person might emphasize the depressive factors, and think of it in terms of a manic-depressive reaction type, while another person might emphasize the ideas of reference and the feelings of un-

reality—for example, the feeling of depersonalization—and thus the symptomatology of conditions such as dementia præcox might be thought of. The important thing, however, not only from the point of view of diagnosis but also from that of psychosis, is to realize that here we had a case who had certain constitutional difficulties, but, in addition, had been an individual with good potentialities in her constitution, and who up till a certain period of time had been able to meet whatever lay in front of her. The point which I would therefore emphasize is that, irrespective altogether of symptoms, we here have an individual with sufficient good stuff to enable her with encouragement and help to react satisfactorily to her illness. This she did, and in the course of a few weeks she made a good recovery. The case, however, shows in addition, very clearly, the difficulties which were actually present in her life, her inadequate reactions and her subsequent failure, so that a psychosis developed. It also brought to light certain definite trends—for instance, her attitude towards her father, and her attitude towards her teacher friend—and it shows how the symptoms were merely an indication of the struggles of development; the probability is that the instinctive forces in her nature had never developed beyond the homosexual stage. The prognosis in such a case, therefore, must depend on elucidating the etiological factors, on building up the personality, and on the constitutional adaptability of the individual.

A young woman, perhaps rather past the adolescent period, 28 years old, was admitted to this hospital in June, 1922, in a state of great emotional excitement, expressing ideas of great wickedness and crimes, which were known to be delusions. She stated that she wished to kill herself, that she had tried to do so, but had failed in courage; she wished to kill her mother and the rest of the family. Among other things, she stated that the Almighty had visited her with a dreadful affliction, that her bowels were burnt out, but that there had been no physical or mental pain. The patient was a twin, but had been a hardy healthy child, who had developed in a perfectly normal way, and had always been keen and anxious to outstrip her companions. At school she was very clever, and after leaving qualified herself for the position of a post-office clerk, later becoming a telegraphist and sorting clerk. She was graded first class. In regard to her work, she tended to be over-conscientious, and constantly blamed herself for not doing better than she had actually done. She was a bright, sociable girl who had many friends, who took an interest in most things that went on, and who showed no particular nervous traits. She belonged to the sect of Plymouth Brethren, was keenly interested in religious work, and studied theological books. Following a period of physical illness, she became somewhat duller, did not talk quite so freely, and things seemed to be a burden to her. About this time the Peel case was receiving a great deal of publicity, and the patient took herself to task in regard to timing certain telegrams. She stated that one day a "bookie" had handed in a bunch of wires, asking her to time them at once. She refused to time them until he had stamped them, and then she took her time from the office clock, as was customary. When she went to the machine clock, however, she found that the office clock was two minutes fast, and on account of this she now says that she did the bookie a wrong turn in not timing his wires by the instrument clock. Apart from this idea, she became obsessed with a feeling that she was immoral, and threatened not only to injure herself, but to kill her mother and her brother. Another point which should be emphasized in connexion with this illness was the fact that for a considerable period of time she had been troubled with dysmenorrhœa, and also with sleeplessness, so that latterly she was only sleeping for about two hours every night. There was, perhaps, as well, a somewhat unusual attachment to her father, and a very definite antagonism towards her mother. A physical examination showed that she was a very thin, poorly nourished girl, who had numerous bruises over her body. She had a high, arched palate, and projecting teeth. There was, however, no definite disorder of her general system. During the first part of her hospital residence she was very distressed and emotional, was constantly talking about the "awful girl" she was, and what a trouble and worry she would be to the nurses who had to look after her. She was perfectly clear and connected, talked about herself being a depraved person, and related episodes when she had lost her temper with her mother and struck her. In investigating her life-history, she gave a history of auto-erotic habits which had been practised ever since her school years. She described also episodes between her parents which she had witnessed when four years old, and how these episodes had made a lasting impression on her, even although at the time she had not understood them. There were various other sexual traumata which made a very definite impression on her, and which she had attempted always to repress and forget. When her mother knew of her difficulties, instead of helping her, she became angry with her, and did her best to knock such ideas and feelings out of her daughter by terrifying her with threats of eternal punishment, and by herself ill-using her. On account of all this she felt that there was no possible hope for her, that there was not a God, that the only thing that kept her from destroying herself was the knowledge that when she died she would go to a worse hell, and that her name would go down to posterity as "that girl H—who lived in Gartnavel." She asked to be put into a straight-jacket, and placed in the deepest dungeon. Apart from this condition of great emotional depression, there were no special psychotic symptoms; there was no evidence of any hallucinatory phenomena, and the ideas which she expressed were more or less in harmony with her mood. Perhaps also one might emphasize the fact that when she was 17 or 18 years old she had an affair with a boy who also belonged to the sect of the Plymouth Brethren. She stated how she had despised him because she had fancied he was beneath her socially, and often she was ashamed of being seen in his company. During the course of eight or nine weeks this patient was able to readjust herself, and has resumed work in the post-office.

A case such as this again brings forward very strongly the biological viewpoint, and makes one think in terms of a life-history, and much less in terms of symptomatology. Indeed, if one had to think of the symptoms in such a case—of a depression with both suicidal and homicidal impulses, with self-accusatory ideas in regard to her sex life and her misdemeanours in general, occurring in a setting of relative clearness—the general tendency would be to regard such a type of illness as likely to run a very prolonged course, and to give, to say the least of it, a very guarded prognosis. If, however, one thinks of it in terms of etiology and of reaction to actual difficult situations, then one comes to realize that here one was dealing with a girl who up to a certain point had shown capabilities of a very exceptional degree, who had been a leader among her friends, and had been beyond the average in general intelligence. Following a period of ill health we have a reaction characterized by various psychotic symptoms which have dealt with, and been related to, the disordered instincts of her life, and which have not been met either in a healthy way by herself, or been benefited by her mother's treatment of her. I would therefore again emphasize in connexion with this case that our prognosis should not, and must not, depend on the symptoms or on classification, but it should be brought into close relation with the etiological factors and the life-history.

In contrast to the above cases I would like, very briefly, to report three further cases, which bring into prominence the consideration of exogenous factors as opposed to constitutional ones.

A young man, in the early twenties, who had a history of joining the army when he was 16 years old. He served both at home and abroad during a period of five and a half years, and was very severely strained on more than one occasion. On resuming civil life he entered the university to take his B.Sc. degree for engineering. A few months later he began to feel that one of the professors was making pointed remarks which he referred to himself. This was the basis for the beginning of ideas of persecution, which culminated in his making a written statement to the police, not only detailing the methods by which he was being persecuted, but threatening that he would take the law into his own hands. His attitude was so suspicious, and his general emotional condition was so tense, that he was examined by a mental specialist and admitted to the reception wards. Later he was transferred to one of the parochial institutions, where he had a history of being very violent and impulsive, of threatening those about him, of saying that he would murder one of the attendants if the opportunity ever came his way. On admission to this hospital, his condition was similar to what has been described. He was very tense and suspicious, and for a period of time following his admission he made many determined attempts to escape. On more than one occasion he used extreme violence, and was sullen and threatening in his whole demeanour. He would not admit that he was mentally ill, but on the other hand maintained that he was perfectly well, and that his detention in the hospital, and the strict observation under which he was kept, had influenced and determined his behaviour. He maintained that his suspicions were correct, and could not be induced to believe that they were the result of a disordered method of thinking. This patient did not show any very marked constitutional symptoms; he was described as always very serious-minded, perhaps above the average in general intelligence, but, in addition, sensitive and secretive in that he did not confide particularly in anyone. He was, however, many-sided in his interests, and had always taken a prominent part in games as well as in his intellectual studies.

A case somewhat similar is that of a medical student in his final year, who after attending a meeting of representatives of the different Scottish universities developed the idea that he was marked out for some very important position, and identified himself both with Lloyd George and with Michael Collins. In addition, he formed an attachment to a very wealthy girl, and in the midst of his studies he developed the idea that a distinguished alienist in a neighbouring university was exerting his influence to prevent him from becoming engaged to this lady. As a result of his ideas he

wrote a threatening letter, saying that unless this influence was removed he would take steps to carry out his threats. He did actually make an assault on one of the university lecturers. This condition had arisen in a boy who had many-sided activities, who up to a certain point had developed in a very efficient and satisfactory way, and who had served in the army during the period of the war years. The constitutional element in his case likewise was not of very great importance.

A third case, somewhat different, but showing again the same train of symptoms, is that of a young man who suffered severely from auditory hallucinations, on account of which his conduct was impulsive, and dangerous to himself and to others. During a period of residence in another hospital he made various definite attempts to mutilate and harm himself. In this case likewise the constitutional symptoms, although present in a mild degree in the form of shyness and sensitiveness, had not been particularly well marked, but the condition seemed largely to have evolved from the stress and strain of war service. There were other elements in the case as well, which would take me too long to mention.

I think these last three cases which I have mentioned may be considered for the moment together. They all—as opposed to the cases already reported—show a severe and serious group of psychotic symptoms developing in youths at the adolescent period. The nature of the symptoms is such that at first one would be inclined to give a very grave and serious prognosis, but if we put these cases on a different basis, and consider them in the light of the life-history of the individual, and think of them as reactions to the very definite periods of strain in each of their lives, then the outlook becomes to a certain extent modified.

During the war years I reported a group of cases which I termed "the dementia praecox type of reaction occurring in soldiers," and I maintained at that time that such cases occurring in ordinary civil practice would at once have carried with them an ominous outlook; but the striking thing was that as a general rule they reacted very quickly to hospital treatment, and made better adjustments than at first sight seemed possible. This, I believe, was due to the fact that in war time cases occurred at a more superficial level, and, furthermore, were detected early. I hold that these three cases which I have merely mentioned bring up the same viewpoint. They are cases which most people would readily group as being in the nature of a dementia praecox reaction type, but the important thing is that they have all evolved in response essentially to exogenous factors. I would therefore maintain that, irrespective of their present symptoms, each of these cases has a potentiality to react in a much more favourable way than at first glance might be thought. I believe that the prognosis of the psychoses occurring at the adolescent period, whether of the manic-depressive, dementia praecox, or the undiagnosed group, depends very largely upon whether one can demonstrate or not constitutional anomalies during the period of their development. If the constitutional anomalies, in the way of changes in their temperament, are particularly well marked, then I do believe that the prognosis is a very different thing, and a very much graver thing, than it is in these cases where one can point to more definite exogenous factors as being responsible. In the latter group, those cases which may in one or other particular show some constitutional involvement, but where the outside interests have been more prominent the prognosis is infinitely better.

All these three cases which I have mentioned are at the present time adapting themselves in satisfactory ways, and the difficulties that have been mentioned in dealing with them are not now prominent. One of the factors which I believe has been largely instrumental has been the development of their occupational activities. I realize risks—considerable risks—have been taken in all of these cases, but the end has justified the means. Each of them has been steadily employed in occupational work of a varied and interesting kind, and their outlook has been so modified that instead of being difficult and refractory people to deal with they have become quiet and bidable, and have acquired a control over themselves and an adaptability towards the general situation which at first sight had seemed impossible to attain. I therefore believe that although these cases may not make an entire recovery in the medical sense of the word, although they may not gain complete insight into the actual nature of the illness, each of them may even yet make a social—in contradistinction to a medical—recovery. By this I mean that their interests may be so far developed that they will learn the value of keeping themselves in hand, and, provided their after-life can be so arranged as to be free from any great anxiety or strain, there is no reason why they should not continue to maintain good health over an extended period of time.

This biological way of looking upon mental illness, whether or not it occurs at the adolescent period, will alter one's hopefulness towards one's cases considerably, and on that account alone it will allow medical officers to tackle these problems of mental illness occurring at the adolescent period with much more enthusiasm than previously, and, in consequence, our recovery rates will be influenced to a very much greater extent. It is not merely a question of eradicating focal infections, of attempting to establish the endocrine balance, of developing occupational interests, or of analysing the psychogenesis of the disorder; but the important thing is to keep an open mind in regard to all of these factors, to estimate how one has dovetailed into the other, and above all to realize that very often the prognosis will depend on the intensity and individuality of the treatment.

In addition, there is no doubt at all that if cases come under observation and treatment early in the course of the disorder the prognosis is infinitely better than it would otherwise be. The trend of public opinion is in that direction. The establishment of out-patient departments and psychiatric clinics is gradually being brought to pass, and these agencies, along with more enlightened methods of treating our mental cases, and with the spread of the knowledge of the principles of mental hygiene, should gradually enable us to take a more hopeful view in regard to so-called functional brain disorder.

Summary.

The above remarks may be summarized in the following paragraphs:

1. The adolescent period is such a critical one that parents, doctors, teachers, and all those interested in the training and development of children, should constantly be on the alert for changes in character and behaviour which possibly might indicate the beginning of a serious form of mental illness.

2. The formal differentiation of mental disorders occurring at the adolescent period into prognostic-diagnostic groups was a great advance on previous work, but further experience showed that differentiation on the basis of symptoms was unsafe.

3. The attempt to treat such cases from the organic, visceral, and toxic side has met with a fair measure of success, and has stimulated research work, but there are still many cases which are outside the scope of such therapy.

4. The psychobiological conception is the most satisfying one, not only because it means an investigation of all those factors which have tended to produce the disorder, but also because it emphasizes the importance of working with whatever material is at hand, and of attempting to modify it.

5. Cases are reported which illustrate the above conception, and which show that the symptoms must always be considered in the light of the personality; other cases are reported which emphasize the importance of attempting to differentiate between what is constitutional and what is exogenous.

6. A grave prognosis is indicated in those cases which have shown well marked constitutional abnormalities, but there are many cases which, irrespective of constitutional defects, have sufficiently developed their outside interests to enable them, under the best conditions, to satisfactorily readjust; the prognosis in cases which have developed on an exogenous basis is infinitely better.

7. A complete recovery with good insight in cases of the dementia praecox reaction type is comparatively infrequent, but a social, as opposed to a medical, recovery takes place more frequently than is generally recognized.

8. The prognosis should not be based on symptoms, but should depend on the acuteness of the disorder, on its early recognition, on the individuality and intensiveness of the treatment, which in turn must be modified according to a study of the reactions of the personality.

DISCUSSION.

Dr. C. P. SYMONDS (London) said that Dr. Henderson had laid down no absolute rules governing the prognosis in adolescent insanity, but indicated the opportunity afforded to every intelligent student of human behaviour of formulating a rational opinion upon the case of the individual patient. In this matter of prognosis there was a wide divergence between the psychiatry of Kraepelin and the psychiatry of common sense. Dr. Henderson had pointed out that the patients whom they were discussing often failed to come within the range of proper treatment until the stage for preventive treatment was past. One of the reasons for this was, as he said, the ignorance of the general public in these matters and their tendency to overlook peculiarities of conduct, or to take cover behind the blessed excuse of "nerves." Educational propaganda in this direction was sorely needed, and there were signs that this was forthcoming. The fault, however, was, Dr. Symonds felt, not wholly with the layman. The average medical student in the course of his curriculum had scarcely any opportunity of acquainting himself first-hand with such problems as they were discussing. Formal lectures and demonstrations taught him very little, and as a rule he went into practice with a feeling that cases of mental disorder—major or minor—belonged to the province of the professional psychiatrist, who had some mysterious formula for dealing with them, and that such cases were outside the sphere of his own usefulness. Hence the regrettable tendency among members of the medical profession to encourage the hypothesis of "nerves" until the stage of preventive treatment was past and the patient's asocial trends demanded certification.

This defect in the system of medical education would not, Dr. Symonds believed, be repaired until they had established observation wards for mental cases in the teaching hospitals. The advantages of this plan would be threefold: (1) The very fact of the existence of such a ward in a general hospital would make the student realize that the treatment of mental disease was an integral part of medical practice; (2) the student could also have the opportunity of observing in individual cases the part played by the various factors—heredity, habit of mind, physical disease, and environmental stress; (3) the hospital patient would be encouraged to find that he could obtain help in the solution of mental problems outside the walls of a mental institution. If the patient with early symptoms of mental disorders sought medical aid it was to the neurological department of the general hospital that he came. And yet, with one exception, there were in London, so far as he knew, no facilities for his treatment as an in-patient.

Dr. Henderson had stressed the importance of the environmental factor in cases of adolescent insanity and had indicated the possibility that an individual, who had failed to make a successful adaptation to ordinary difficulties, might preserve his mental health if life was made easier for him while at the same time he was taught to meet his problems more frankly. In practice it was very often very difficult to find a sheltered path for the individual who was handicapped. One of the commonest obstacles was the economic factor, which was especially prominent today. It was not easy for a man who had suffered from any kind of mental disorder to find employment. In the after-care of these patients more co-operation was needed between the general practitioner and the psychiatrist. This, Dr. Symonds was sure, would come when psychiatrists in general acquired the habit of talking about their subject intelligibly, as Dr. Henderson had done that day, and when the general practitioner on the other hand learned that there was no real mystery in the study of mental disorders. For hospital cases much more might be done in the way of after-care by means of proper organization. There were many charitable bodies and after-care communities who were ready to help, but social service workers were needed in connexion with the hospitals who would make it their aim to follow up individual patients and secure that help for them when it was most wanted.

In conclusion, Dr. Symonds emphasized once more the supreme importance of enlisting the understanding and sympathy of the general practitioner if they were to make any progress in the early diagnosis and treatment of adolescent insanity. The great majority of these cases were in his hands. In many instances, no doubt by the light of nature, he discerned their problems and gave the needed help. But if instead he looked at them askance and gave them "tonic for their nerves" they had to ask themselves where the fault lay. He had endeavoured to indicate where, in his opinion, the fault was and what were the chief remedies.

Dr. GEORGE RIDDOCH (London) was in entire agreement with Dr. Symonds in urging the necessity of making provision in general hospitals for teaching on, as well as investigation and treatment of, mental illnesses in the early stage. Unfortunately it was true that psychiatry was a branch of medicine about which the average practitioner was very ignorant. This was largely the result of two causes: (1) the clinical teaching on insanity at present offered to the student was dissociated from general medical work in the sense that it was almost entirely carried out in asylums. This dissociation must often be a handicap to the teacher as well as a great disadvantage to the student. It might to some extent explain why the course was so often looked upon as a joke and a source of amusement; (2) the cases used for demonstration were usually examples of advanced mental disorders. He had the most meagre opportunities for coming into contact with illnesses of that kind at their beginning. Altogether he was apt to be handicapped by ignorance—not due to his teacher but to circumstances—that psychiatry had no relationship with medicine as he studied it in the medical wards, but was a thing apart—in fact, a mystery. He knew only how to certify a lunatic, and even in that legal matter was frequently far from being proficient.

The obvious remedy for this general ignorance of an important branch of medicine was to give the student the opportunity and encouragement to investigate mental disorders for himself and in relation with his other clinical work. This could be best done at his general teaching hospital. Such a reform would not in any way call for the elimination of the present teaching in asylums but would greatly increase its value. Dr. Riddoch also spoke of the increased understanding of many mental ailments, especially the psychoses of adolescence, that had already followed the study of them as modes of reaction, and its bearing on more accurate prognosis and treatment.

Sir FREDERICK MOTT (London) said that though his own attention had been mainly fixed on the pathological side, he was much interested in the psychogenic factors, especially in their relation to the endocrine systems. He emphasized strongly the factor of genetic inadequacy as a predisposing factor of insanity. Each case was a biological problem of its own, and too much classification was a mistake. He discussed briefly his own work on the changes in the productive organs in dementia praecox, especially in regard to nuclear degenerations.

Dr. F. E. STOKES (Portsmouth) discussed the question of the recovery rate in the dementia praecox type of case, and recalled the fact that Clouston had 15 per cent. of recoveries in five and a half years' work. The figures he gave showed a higher recovery rate among the manic-depressive type than in the dementia praecox type.

The PRESIDENT said that the most important thing was the study of the reaction type of the soil in which the psychosis appeared. If it was a "shut-in" type a deteriorating psychosis was probably present. The greater the exogenous stresses present in any case the greater were the chances of recovery. This dictum was well exemplified during the war. He quoted two very interesting cases, and concluded by pointing out the value of finding the right environment for the patient.

Memoranda:
MEDICAL, SURGICAL, OBSTETRICAL.

TREATMENT OF IRITIS WITH TUBERCULIN.

THE following case is of interest on account of the fact that tuberculous infection of the cornea and iris had evidently existed for a considerable time without doing any permanent damage, that local ophthalmic treatment had no effect on the disease, and that tuberculin, unaided by any other treatment, produced a cure in a short time.

A girl aged 15 years was brought to my out-patient department with a history that the right eye had been inflamed for four years; the inflammation had improved at times but had never got quite well. During practically the whole of the four years she had had special ophthalmic treatment, but the condition was as bad as when the attack first started. The left eye had never been involved. The cornea of the right eye showed a diffuse haze, and scattered through its deeper layers were some small yellowish-grey patches of infiltration. The iris was difficult to see owing to the corneal haze, but was contracted, discoloured, and did not react to light. There was intense ciliary and conjunctival injection accompanied by much photophobia and lacrymation, but very little pain. There was no ulceration of the cornea and no corneal staining with fluorescine. The tension of the eye was slightly reduced. There was a considerable degree of convergent strabismus. The patient's general condition was poor, and there were several enlarged glands on both sides of the neck. The condition was considered to be one of tuberculous kerato-iritis. An examination by a physician showed no other obvious tuberculous focus. The Wassermann reaction was negative.

The local treatment prescribed was atropine, hot bathing, and protection of the eye. A tonic was given also. This treatment, the child's mother told me, had been ordered many times before, but had done no good.

At the end of a month, as no progress was being made, injections of tuberculin were commenced, and all treatment to the eye discontinued. At the end of six weeks there was a very decided improvement. The cornea began to clear, the infiltrations in it grew smaller, and the iris, which became more clearly visible, showed some small buff-coloured nodules towards the periphery. The tuberculin injections were continued, the eye receiving no local treatment, and in another month (ten weeks from the commencement of the tuberculin treatment) the cornea and iris were perfectly clear and the ciliary and conjunctival injection had quite disappeared.

I have seen the patient at intervals for the last nine months. There has been no recurrence; the glands in the neck are considerably smaller, and the patient's general health is much improved.

I have to thank Dr. Campbell Faill, tuberculosis officer of this city, for kindly supervising the tuberculin treatment.

E. R. CHAMBERS, F.R.C.S.E., D.O.M.S.,
Ophthalmic Surgeon, Bristol Royal Infirmary.

A RECORD PLASMACYTOSIS.

A BOY, aged 7 years, had a suppurating gland in the neck which was opened. After doing well for a fortnight he suddenly became ill, the wound became inflamed, and his temperature reached 104° F. Antistreptococcic serum was given. Next day (May 12th, 1919) he had a bright red rash like scarlet fever and the case was notified as such.

On May 13th at noon he was very ill—pulse 140, temperature 105° F. Blood films showed numerous well stained platelets, marked leucocytosis, and conspicuous iodophilia not entirely confined to polymorphs. The differential count was: myelocytes 6, polymorphs 86, lymphocytes 3, mononuclears 5. Neutrophil granules were intensely stained. The majority of the polymorphs had bar, bent, or S nuclei, and two distinct lobes or more were uncommon. In the former Döhle bodies were usual, in the latter vacuolation was frequent.

On May 14th the general condition and films were little altered. The rash was dusky, the tongue raw, the throat much inflamed, and the cervical glands swollen. Next day the general condition was better—temperature 100° F., leucocytosis less, and the differential count was: Myelocytes 1, polymorphs 80, eosinophils 1.5, lymphocytes 10, mononuclears 5, plasma cells 2.

On May 17th the boy was much better; the films showed anaemia, slight leucocytosis, and a differential count of 400 gave polymorphs 50, eosinophils 2, mast cells 0.5, lymphocytes 18, mononuclears 10, and plasma cells 19.

Plasmacytosis is common in the course of many diseases, but I have not seen more than 5 per cent. in any other patient. Gruner cites a case of scarlet fever with 11 per cent. (*Biology of the Blood Cells*, p. 270).

Ealing, W. ROBERT CRAIK, M.D.

Reports of Societies.

SURGICAL TREATMENT OF PHTHISIS.

ON November 27th the Medical and Surgical Sections of the Royal Society of Medicine held two joint meetings to discuss the surgical treatment of pulmonary tuberculosis. Dr. ROBERT HUTCHISON was in the chair at the first meeting, Mr. C. A. R. NITCH at the second.

Professor P. BULL of Christiania spoke on the subject of extrapleural thoracoplasty with apicolysis. This belonged to the same category in the treatment of pulmonary tuberculosis as the creation of an artificial pneumothorax. Both aimed at producing a collapse of the lung with retraction due to the development of connective tissue; thereby the lesion was healed. This retraction and development of fibrous tissue was the general method throughout the body whereby tuberculous lesions were healed. The lung, however, was at a great disadvantage compared with other tuberculous organs, since without operation it could not shrink further than was permitted by the negative pressure in the pleural cavity, nor further than the stiff thoracic wall could follow. Since artificial pneumothorax was less risky than thoracoplasty the speaker usually tried inflation first. If this were unsuccessful, thoracoplasty might be advised. On the whole the indications for thoracoplasty coincided with the indications for artificial pneumothorax, and the former should be employed when the latter could not be used. In cases of doubt repeated haemoptyses should hasten the decision to undertake thoracoplasty. Theoretically the lung of the opposite side should be healthy. He was satisfied that operation was justifiable when symptoms in the opposite lung had quite disappeared, or when during a long period expert observation had found them to remain stationary and of slight extent. Even though little or nothing were found clinically, the x rays often caused a proposed operation to be abandoned. Progressive or greatly extended tuberculosis in the opposite lung was a contraindication. He believed that there were a great number of patients with unilateral pulmonary tuberculosis or whose tuberculosis in the opposite lung was only slight or had temporarily subsided. A slight tuberculosis of the larynx or an infection of one kidney was not a contraindication. Absolute contraindications were an advanced degree of infection in the other lung or a bad general condition. A cavernous unilateral pulmonary tuberculosis gave a much more unfavourable prognosis after thoracoplasty than the infiltrating shrunken type. The closest co-operation between physician and surgeon was necessary.

Professor Bull said that he operated with the patient lying on the healthy side, and used the hook-shaped Sauerbruch incision on the back. Resection of ribs was made from the tenth or eleventh up to and including the first. It was vitally important to resect as far back as possible right up to the costal tubercle and the point of the transverse process. He believed a two-stage operation was best. When done in two stages his mortality rate was about 4.5 per cent., in one stage it was 30 per cent. At the first operation the eleventh to fifth ribs were resected; in the second operation the fourth to the first. When he reached the fourth or third rib he performed an apicolysis—that is, he made an incision through periosteum and endothoracic fascia and loosened the top of the lung from the thoracic wall with his finger. This made resection of the two upper ribs more easy. He recommended general anaesthesia. Should there be difficulty in getting cavities in the apex to collapse, intrathoracic transplantation of fat might be found useful. After the operation it was important to relieve expectoration. An extra nurse remained with the patient day and night to support the operated side during attacks of coughing, and to encourage him to expectorate. A good compressing bandage, and morphine or omnopon, were necessary. The temperature often remained high and the

pulse frequent for four or five days; then in favourable cases it fell to about normal with considerable diminution of pain. The amount of sputum often diminished whilst the patient was still in the hospital. A rapid diminution of sputum was a good but not completely reliable prognostic sign as regards lasting recovery. In a considerable number of cases the tubercle bacillus disappeared from the sputum during their stay in the surgical clinic, nor did it return. This suggested a good prognosis. Later there developed a scoliosis of the spinal column with the convexity toward the diseased side, the reverse of the post-empyemic scoliosis. The post-operative rise of temperature was probably due to increased absorption of toxins from the collapsed lung which, like a sponge, was pressed partly free from its contents.

Professor Bull then gave several instructive tables illustrating his results. Out of 56 left-sided extrapleural thoracoplastic operations he had had 2 deaths from operation (3.5 per cent.); of 36 right-sided cases 7 deaths (19.4 per cent.). The right-sided operation was therefore considerably the more dangerous. The following table may sum up the speaker's results:

Results of Fifty-five Extrapleural Thoracoplastic Cases observed from three to nine years after Operation.

Dead, 28 = 51 per cent.—			
From operation	5 = 9	per cent.	
From tuberculosis	22 = 40	,,	
From other causes	1 = 1.8	,,	
Still alive, 27 = 49 per cent.—			
Symptomless and able to work ...	17 = 31	per cent.	
Tuberculous	10 = 18.2	,,	

The danger to the patients lay in a new outbreak in the other lung, often several years after operation.

Dr. CLIVE RIVIERE said that cases suitable for pneumothorax usually came to the physician with disease already crying out for treatment. It was only a particular type of pulmonary tuberculosis which was suitable for collapse therapy, and this type often reached a definite diagnosis only when moist sounds already covered a good part of one lung. Earlier the disease escaped diagnosis because it was deep and out of reach of the stethoscope. The common type of deep-seated or hilus tuberculosis was double. In the fortunate cases suitable for collapse therapy only one lung was seriously affected. The *x* rays showed an "interstitial" spread on both sides, but the parenchymatous outbreak following this was in these cases confined to one side only. The majority of such cases were found in adolescence. It was common to see patients with advanced one-sided disease clinically but double disease to *x* rays. Therefore a radiogram should always be used in deciding suitability for pneumothorax. The better lung was seldom quite free; there was generally a thickening of strands seen by the *x* rays, but if these were not very lumpy and if the outline of the lung field was clear or contained only a few sharp-cut shadows the lung would probably function safely whilst the other was collapsed. To the stethoscope the better lung would probably appear quite clear, and if at a later stage the disease spread and became active in this lung the first clinical signs were found, not at or near the apex, but about the mammary region or in the axilla. It was remarkable how in the class of case described the disease might have spread through the whole lung, and surface signs might have been present for a long time, and yet complete collapse by pneumothorax might be obtainable. A lung should never be presumed adherent without pneumothorax having been tried. Negative pressure might draw heart and mediastinum into one side of the chest and deform the diaphragm without any pleural adhesions being present. When pneumothorax completely failed through an adherent pleura, or only a partial and ineffective pneumothorax could be obtained, the question of further surgical measures would arise. In cases of a partial pneumothorax often a patient trial would be needed before its work could be fully gauged. If its effects on symptoms were unsatisfactory, if large cavities were left uncollapsed, or if, in spite of measures to prevent it, large febrile reactions followed the refills, additional methods of lung collapse should be used. The cauterization of adhesions might help, but usually thoracoplasty, with or without a pneumothorax, would be necessary. He himself had had no experience of a combined pneumothorax and thoracoplasty, but in certain cases it should prove rational by avoiding the permanency which was perhaps the most embarrassing feature of thoracoplasty and similar operations. If pneumothorax alone had been tried and had failed, the "better lung" must be examined with yet more meticulous care before a thoracoplasty was advised, for further factors now came into consideration—the finality of this further move, the strain of operation, and the yet more violent mechanical and toxic disturbance brought about. In these cases there must often be a choice between an operation of doubtful outcome and, on the other side, certain death. The patient's interest must be placed before the physician's reputation, but these operations should not be dragged into undeserved discredit. Of other indications and contra-indications, good nutrition was an important asset and cachexia a decided contraindication. The heart would have to meet considerable strain and must be fairly sound. Intestinal tuberculosis was an absolute contraindication, but a moderate laryngeal lesion might be allowed. Certain methods of operation other than thoracoplasty might be cited. Multiple adhesions might be separated by opening the pleura through an intercostal space; single or few adhesions might be divided without opening the pleural cavity. These methods were sometimes useful. With regard to pneumolysis, the parietal pleura was easily stripped from the endothoracic fascia; thereby the lung was collapsed, but a space between lung and chest wall remained. This could be filled with gas or air or with fat or paraffin. In each case the risk of sepsis was considerable. The disadvantages of thoracoplasty as compared with pneumothorax were: first, the strain of the operation and the rapid collapse of the lung with auto-intoxication and risk of aspiration pneumonia; secondly, the collapse was permanent—there was no return; and lastly, the collapse might not be sufficiently complete to arrest the disease. In this case supplementary measures might be used.

Mr. H. MORRISTON DAVIES agreed that pneumothorax should be the first surgical manœuvre tried. If the collapse were complete the result was excellent. Often, however, pneumothorax failed completely or partially because of adhesions. If there were a broad adhesion and pneumothorax was continued the adhesion did not break but the lung ruptured and a pyo-pneumothorax resulted. Other methods of removing adhesions were to introduce a thoracoscope and remove them by the electric cautery; others might be dealt with by a special tenotome; and yet again, in cases more extensive, the chest might be opened and the adhesions exposed, ligatured, and cut. Another method he would like to mention was section of the phrenic nerve. This was useful in cases of pneumothorax where there were adhesions between base of lung and diaphragm. In these patients cough was a troublesome symptom. If the phrenic nerve were divided the cough went. If the disease were localized to the upper lobe the speaker advocated apicolysis. Paraffin or wax, not gas, should be used to fill the cavity remaining. The danger lay in the fact that paraffin might be extruded later, with the risk of secondary infection. Fat was better, but this might liquefy and then be extruded. If the adhesions were more extensive thoracoplasty was necessary. The speaker had found that local anaesthesia alone was too great a strain. He now used novocain, alcohol to paralyse the intercostal nerves, and a little chloroform. He strongly advocated the paravertebral incision. The ribs must be removed right back to the transverse processes. The first rib especially must not be neglected. He had found a one-stage operation best. There was little deformity. In children the axillary incision might be used.

Dr. E. BEAUMONT emphasized the very small number of patients suffering from pulmonary tuberculosis who required any operative treatment. The percentage had been variously estimated at from 2 to 20. He would suggest that the indications for a pneumothorax were: (1) patients with unilateral lesions who failed to respond to one month in bed on absolute rest; (2) similar patients who responded to rest in bed but in whom getting up was followed by active manifestations; (3) haemoptysis which did not respond to other measures. The type of operation necessary was a decision for the surgeon and not for the physician.

Dr. S. VERE PEARSON said that before deciding upon a thoracoplasty the general condition and symptoms of the patient must be considered rather than any physical sign. Prognosis should be considered from two points of view: what was likely to happen if the operation was undertaken, and what if it were not attempted. The anaesthetic should be both general and local. He wished to put in a plea for thoracoscopy and removal of adhesions with the electro-cautery and a pneumothorax. This procedure was simple and scientific. The danger of cutting the lung with a knife was avoided. The risk of surgical emphysema was lessened by pulling down the skin before making the incision and so making a valve-like opening. A tight bandage was very important.

Mr. J. E. H. ROBERTS quoted some important figures from the work of Continental surgeons. Saugman and Gravesen had 45 cases in which incomplete pneumothorax only was possible by reason of adhesions. Of these, 11.1 per cent. were finally able to work; 86.7 per cent. died from tuberculosis. In 77 cases no pneumothorax was possible. Of these, 11.8 per cent. recovered sufficiently to work, 81.8 per cent. died. Sixty-nine cases were treated by thoracoplasty: after two to seven years 44.9 per cent. were able to work; 10.1 per cent. were alive but unable to work, and 42.1 per cent. were dead from tuberculosis. Jacobaeus and Einar Key had 44 cases treated by thoracoplasty. The following results were disclosed three to seven years later:

Able to work	27	per cent.
Better	18	,,
No better or worse	7	,,
Dead from operation	11	,,
Dead from tuberculosis	26	,,

All the figures included early operations. Some were done in one stage and some in two stages. There was therefore a case firmly made out for thoracoplasty. Posterior resections of the ribs should be continued to the transverse processes. Professor Bull, by combining thoracoplasty with apicolysis, had got rid of the objection that thoracoplasty did not compress the apex. Mr. Roberts administered glucose and saline twenty-four hours before operation and bound broad strips of strapping on the chest after. If there were present a fairly high degree of pneumothorax care should be taken in doing thoracoplasty lest cardiac symptoms occurred.

Dr. L. S. T. BURRELL recommended the operation of cutting the phrenic nerve. It was simple, gave additional rest to the lung, and did not permanently paralyse the diaphragm. He emphasized the serious nature of thoracoplasty. By doing this they burnt their boats. Other methods of resting the lung could be stopped if the other lung made this necessary; but thoracoplasty was final. Mr. TUDOR EDWARDS advocated in many cases thoracoscopy and cauterization of adhesions. He showed a very instructive series of pictures illustrating the views obtained through the thoracoscope, the types of adhesion seen, and the best methods of dealing with them. Dr. CUTHBERT emphasized the value of radiology in deciding the operation of choice.

THE NERVOUS CHILD.

A DISCUSSION on the nervous child took place at a meeting of the Medical Officers of Schools Association on November 28th. Mr. R. C. ELMSLIE presided.

Dr. H. CRICHTON MILLER, in opening the discussion, said that he proposed to restrict his remarks to some fundamental psychological conceptions of the child and its difficulties. Those who had to deal with education in any shape or form must never forget that they were supervising the child in his long, tedious, and difficult pilgrimage from the outskirts of society towards its centre. In that pilgrimage the child was called upon to make numerous new adjustments. Hardly was one adjustment stabilized before the time came for another. In the process of making those new adjustments the child often fell behind. A large number of children who came into the world were problem children from the very beginning, and no sort of education or environment would ensure a smooth progress for them. Such children were bound to meet special difficulties owing to their hereditary malequipment. In the present discussion, however, these children must be left alone, and he would deal only with the child who began with a normal equipment and had a normal environment and who ought to make good as an adult. Unfortunately, the child who started well in this way often went to pieces, and psycho-analysts were constantly coming across adults who were nervous wrecks, and whose wreckage was traceable to some period in their early development when they began to go "off the lines." It must be agreed frankly that the teacher and the school would be beaten every time by the parent and the home. Those of them who had to do with education must accept the fact that they had not the last word to say as to failure or success. Whether the child went to a great public school at the age of 13, to a preparatory boarding school at 9, or even to an elementary school at 5, he went in each case as an individual already developed to some extent—he went as one who had up to a point made an adjustment to a social environment suitable to his years. Often, however, something was lacking about such adjustment. The child of 7 or 8 should be beginning to throw off the shackles of maternal magnetism, yet often at this age there remained a quite morbid and exaggerated craving for maternal protection and comfort. The wife of the head master of a good preparatory school said to him that the little fellows who came to such a school now at the absurd age of 8 really had little use for the masters; she and the matron were the only people in the school who meant anything to them. If the child were cut off from sources of maternal protection he might be expected to break down in one form or another. At the usual age for entering a public school one might expect a certain amount of independence and readiness to accept responsibility, yet here again it was often found that the child's moral and emotional development had been retarded, and the reason was that the father had been a source of fear, if not of terror, in the home, while the mother, instead of being ready to let go the emotional domination which was her prerogative during the first seven or nine years of the boy's life, was quite definitely holding on to that domination. Some boys of 14 in the public school were still "mother's darlings," and it was no use expecting from such boys a normal reaction to social environment. The child was naturally anxious to obtain status in the eyes of his fellows. Some children tried to do it by "showing off," or by various forms of self-assertion, while some became criminals. There was no limit to the number of ways in which the immature specimen of the human species would seek to obtain status in his social environment. It was necessary to go behind this desire to acquire status. The child was suffering from a sense of inferiority. The world into which it had been born was largely an adult world in which the child was incomplete and immature and was reminded on every side of its incompleteness and immaturity. The children and adolescents who made good adjustments were those who accepted the necessary degree of inferiority. But a certain if not a large percentage of children refused to accept that sense of inferiority, and therefore they "compensated" by seeking superiority in some morbid fashion. Many nervous children were children suffering from a very profound sense of inferiority for which they were compensating all the time by an enormously exaggerated or overdetermined manifestation of superiority. The conflict between the attempt to assume superiority and the consciousness of fundamental inferiority produced the nervous make-up.

Dr. Crichton Miller went on to show how this great factor of inferiority might be studied in a special way with reference to the sexual life of the child. There were three different aspects of this which he asked the audience to consider. The first was nocturnal enuresis, one of the most interesting problems in the whole of medicine. In this condition there was no doubt a physical element—by which he did not mean an anatomical element—depending upon some lack of endocrine equilibrium, having something to do with the pituitary certainly, and possibly also with the thyroid. Many of these cases were cured by thyroid treatment alone, but many were not so cured. Nocturnal enuresis, however, was also the result of auto-suggestion. The child became terrified at the thought of its repetition, and the fear was enough to bring about the act. Also it lived within an atmosphere of suggestion.

The admonitions of its elders, and the precautions employed, such as the use of a waterproof sheet, all encouraged the very thing which the child and its elders wanted to prevent. Nocturnal enuresis was the most definite symptom of the cradle condition; the child who in adolescence was resisting development held on to this symptom as a thing symbolical of the cradle. And the child who felt that he could not help his symptom realized that the scoldings and threats were unjust, and that he was the victim of an uncomprehending adult society; thereupon he turned to acts of revenge, and an astonishing number of petty thefts were committed by boys who suffered from nocturnal enuresis. The speaker's next point was masturbation. It was very important that the emotional atmosphere should be cleared away from this subject. All of them had suffered from well intentioned masters and chaplains who had dealt with the subject of masturbation on the most solemn and sacred basis. In all sex matters he was an idealist, but he did feel that extreme harm was done by presenting to the child his conflict of masturbation, which was largely a simple biological one, as though it were one on which his future depended, possibly his immortal destiny. This was grossly wrong, and only rarely did such methods have a good result. They might cure the symptom, but their influence on character was not wise. Finally, he dealt with homosexuality. Every boy and girl normally passed through a phase of potential homosexuality, and when active homosexuality was found amongst school children it was necessary to remember that it was merely a smouldering fire which had been fanned into a flame. It was most disastrous, thoroughly bad for the community and the social group; but, nevertheless, it should not be regarded in the same way as adult homosexuality, which was a perversion. In the child homosexuality meant merely that the normal romantic homosexuality which belonged to this phase of development had most unfortunately turned from romance into passion.

Dr. H. C. CAMERON, who dealt with the subject from the physical point of view, repeated some of the observations made in his paper read at the Portsmouth Meeting of the British Medical Association (BRITISH MEDICAL JOURNAL, November 24th, 1923, p. 963), but inasmuch as he had had no opportunity in that paper of dealing with the treatment of the nervous child he thought he might say a few words on that subject. After showing some photographs of the amyotonic child, illustrating the typical pose of the child suffering from nervous exhaustion, he said that the first line of treatment for the muscular condition would be drill, gymnastics, dancing, and massage. Drill placed the body in a position which was the direct opposite to the characteristic stance of the nervously exhausted subject, and it had more than the effect of a physical corrective. Quickness to act and obey, control and co-ordination, resistance to fatigue, courage, and all the muscular virtues were imparted by drill. With regard to gymnastics, it would be an immense advantage if these could be carried on with the greater part of the body uncovered. The old Greeks knew what they were about in this respect, and the word "gymnastics" meant exercises carried out naked. Without the removal of the clothes the shameful weaknesses were not exposed and improvements were not noted. Massage had immediate benefits in improving the muscle tone, but none of that remote significance which was the essence of drill and gymnastics. In the case of these nervously exhausted children, he would interspace the exercises with frequent short periods of rest, and the rest position which he favoured was what he called the "Little Lord Fauntleroy" position, the ventral position with the upper part of the body resting on the elbows in front of the fire. He had found benefit also from skin friction. Nervous children always did well at the seaside, where their bodies were whipped into a glow by the winds. Hot and cold baths alternately were useful, followed by friction with the roughest possible towel. Just as improvement in the body showed itself in an improved mind, so improvement in the mental environment showed itself in an improved muscular posture. Another important factor was that in all this management of children they must be prevented from observing all the apprehensions which their somewhat pathetic state aroused in the parental mind.

Mr. R. C. ELMSLIE said that although the treatment of posture seemed to be clearly indicated, the difficulties of improving the posture were very considerable. He had known children to receive most capable instruction for long periods, with practically no improvement. His own feeling was that this postural tonus was a thing which in human beings was not entirely instinctive—not quite the natural thing which would be expected if the regulating centre were in the basal ganglia of the brain—but that it was something learned, and that children showed great differences in the way they learned it. This would point to the existence of the regulating centres higher in the brain than the basal ganglia, rather in the cortex, where one would expect to find the centres of those actions which were at first voluntary and afterwards habitual.

Dr. C. E. SHELLY referred to the element of nutrition and its importance in respect to the nervous condition. What chance had the food customarily given to a young child to build up a stable nervous system? The child was fed largely on white bread, from which the real value of the grain had been extracted. The child was deprived of the material most likely to promote mental and muscular development.

Dr. ELWIN T. NASH said that these cases were sometimes amenable to suggestion, but at other times a more powerful counter-suggestion, probably from the mother, upset this line of treatment entirely. It was extraordinary how perverse some parents would be. He had desired to hear something from the openers of the discussion on phobias. Here again he found some children yield easily to treatment, while others resisted all his efforts.

Dr. LETITIA FAIRFIELD considered that in the case of some nervous children it was a waste of time and a real cruelty to endeavour at the outset to improve the muscles. These children could not respond to an increased call on their nervous energy; they needed mental therapeutics before these physical methods were applied. She was extremely sorry for the child who had been driven too soon and too hardly into the cold world. If these children were not given some sustenance and comfort in their effort to get rid of the inferiority complex which was at the root of the trouble, the mere effort to force the muscles would result in harm. Of course, when they had improved a little, massage and similar methods might be tried. It was extraordinary how the "Peter Pans," if allowed to open their hearts to a sympathetic recipient, would reveal their fears in all sorts of ways. It was useful to have had emphasized the part which the mother played, not, indeed, in originating a neurosis, but in augmenting and sustaining it.

Dr. L. R. LEMPRIERE said that his reply to the question whether the nervous child was fit for public school life would be that that was the best place for him. His own careful studies at Haileybury College did not suggest that the nervous children were increasing in numbers, notwithstanding the war and its aftermath. He gave some interesting details of exercises which he had instituted, and their results. He advocated the continuance of the use of belladonna in the treatment of nocturnal enuresis. Dr. M. L. DOBBIE criticized Dr. Cameron's advocacy of the ventral rest position, which she considered harmful in the case of the weak child.

Dr. CRICHTON MILLER, in a brief reply, could not agree that belladonna, to the use of which he objected, was the solution of the treatment of nocturnal enuresis. He had found thyroid of service in some difficult cases. Dr. CAMERON, also replying, said that if enuresis were to be overcome it could only be by securing the whole-hearted support and understanding of the mother. Undoubtedly the apprehension of the thing persisted in the child's sleeping state. He had found it help matters to adopt different devices according to the child's age. In very young children something in the nature of an amulet was useful.

THE PSYCHO-NEUROLOGICAL CLINIC AT UTRECHT.

AT a meeting of the Medico-Psychological Association of Great Britain and Ireland, held at the rooms of the Medical Society of London on November 22nd, the President, Dr. EDWIN GOODALL, referred in sympathetic terms to the death of Dr. W. Ford Robertson, and a resolution of sympathy with his relatives, and marking the sense of loss which the Asso-

ciation had sustained, was carried by members rising in their places.

Professor D. C. WINCKLER gave an address, illustrated by a series of slides, on "Psychiatrical and Neurological Teaching at the Dutch Universities, especially at the University of Utrecht." He said that the organization of the study of neurology and psychiatry at the universities in Holland had been a very difficult matter. The Utrecht Society of Psychiatry was established in 1871, and it organized many petitions urging proper psychiatric instruction. In 1877 it succeeded in having an enactment passed which was entitled "A Law on Higher Education." At this time there were no recognized examinations in psychiatry, and medical men in asylums were recruited from among military medical men who had returned from the Colonies. Donders strongly favoured the efficient teaching of psychiatry, and the lecturer's eyes were specially opened to the need by Professor Leidesdorff, professor of psychiatry in Vienna. In this country it was the exception to have whole-time professors, but in Holland it was a stipulation that professors should not undertake private practice—a wise provision in some ways, but it did not ensure that the professor was necessarily the best man on the subject. In Holland the paying patient constituted a great financial help to the teaching schemes. The 1877 law permitted the establishment of the Amsterdam Municipal University, the Faculty of Medicine of which operated in that city. In 1885 Professor Winckler was nominated a university lecturer on psychiatry and neurology, and money was set aside for research. The Society of Psychiatry held a number of discussions on the need for the teaching of neurology and psychiatry by one professor. The chief opposition to this idea came from practising specialists. He showed how intimate the two subjects were, and that to place the tuition in separate hands must result in much overlapping and duplication. He contended that even a skilled neurologist was not necessarily a psychiatrist; moreover, psychiatry based only on psychology had proved dangerous, as witness Weinroth's contention, in 1882, that "All alienation reposes on sin." In many asylums the clergyman was accepted as the leader, the physician being relegated to a secondary place. Later, the Society took the ampler title of "The Society of Psychiatry and Neurology," and the two departments were successfully fused. At the Utrecht University students could not be trained as specialists before passing their final examination. It was now possible, as a result of various controversies, to retain specialism within certain limits, but he was anxious as to the future.

A project was successfully started for building a clinic of psychiatry and neurology in Utrecht, but as it was to cost £50,000 some hesitation was felt, and the authorities argued that the best place at which to teach psychiatry was the asylum. This, however, was opposed by the Society, and by the Faculty of Medicine at the University, chiefly on the ground that cases of the various transient psychoses—hysteria, neurasthenia, hypochondria, etc.—were seldom seen in asylums. Matters remained stationary from 1885 to 1891, but in 1892 everything seemed in readiness for commencing the new building. However, a small mistake on the part of the architect led to a controversy between the State and the municipality, and there was a further delay. Dr. Winckler paid a great tribute to the energy and perseverance of Dr. Heilbronner, which culminated in the establishment of a new clinic. He did not survive beyond 1914, his death being sudden; and Dr. Winckler succeeded him, becoming director of the newly built clinic of psychiatry and neurology. It had to fill a double rôle: to secure the best possible care to nervous patients, and give them the best chance of recovery; secondly, to give teaching in psychiatry and neurology. Here all patients were nursed on the ground floor; the scientific installations, laboratories for photography, Roentgen rays, etc., on the first floor, and the higher floors were used by house-doctors, administrative staff, nurses, etc. The lecture room was placed between the wards on the ground floor. He described the equipment and the plan of working by the aid of some excellent photographs. The dispensary was visited by 1,200 new patients per annum; and the lecture room had accommodation for 145 students. In the library department a special feature was the scheme for filing ready for immediate use all the photographs, microphotographs, skiagrams, etc., taken; and for each subject there was a definite series of slides. He showed that there exists a happy spirit of co-operation with the Justiciary as well as with the other departments of the University. The average residence in the clinic was three weeks, but some patients stayed there much longer.

The PRESIDENT expressed the Association's gratitude to Professor Winckler for having come so far to deliver the address, and at the same time he congratulated him upon his excellent command of the English language. He had shown the high level on which psychiatry stood in Holland.

Sir FREDERICK MOTT supported the President's remarks. It had been his privilege to see the very fine institution which the Professor directs, and on his recommendation other English alienists visited it, and came back with a fund of instruction. When William of Orange rode into Leyden, after the siege, he asked the burghers whether they would have a university or a remission of taxation, and they chose a university. Sir Frederick wondered in how many English towns such a choice would be made. In conclusion he referred to the many-portal system of entry to the profession in this country, and commented on the advantage if a single State examination was operative.

CORK MEDICAL SOCIETY.

THE opening meeting of the Cork University Scientific and Medical Society (Medical Section) was held on November 6th, with Professor C. YELVERTON PEARSON in the chair. Dr. MICHAEL CAGNEY showed a case of mitral stenosis with aortic incompetence and pericardial adhesions, which was remarkable for the almost negligible rheumatic history in comparison with the extensive cardiac damage. Professor D. T. BARRY demonstrated optogram records of this case, which showed a pulsus alternans which was not appreciable by palpation of the radial pulse, and in which the appearances of the venogram suggested that regurgitation was occurring in the isometric as well as in the sphygmic period of ventricular contraction—a point of bad prognostic import. Dr. J. B. HORGAN described, with specimen and radiograms, a case of right-sided hypopharyngeal diverticulum in a male aged 32.

Professor YELVERTON PEARSON presented a case of pyometra due to a suppurating fibromyoma.

Manual removal of the placenta had been performed on the patient a year before, after a difficult labour, and at that time the obstetrician had noticed no intrauterine fibroid. On coming under Professor Pearson's care, there was great uterine enlargement, with pyrexia. A few days later some two pints of pus containing *Staphylococcus aureus* were spontaneously evacuated from the uterus, and on examination the tumour was felt blocking the internal os, where it acted as a ball valve. Panhysterectomy was performed after douching the vagina and packing the vagina and cervix with gauze. Recovery was uneventful, although previous to operation the patient's condition had been very bad.

Dr. P. KIELY demonstrated two cases of successful use of radiotherapy for rodent ulcer. In one of these cases—a large rodent ulcer involving the bridge of the nose, inner canthus of the left eye, and both lids of the right eye—considerable improvement had taken place. He emphasized the need for patience, as even in apparently hopeless cases involving deeper structures the *x* rays would bring about marked improvement. Dr. R. C. CUMMINS demonstrated a case of amoebic liver abscess, with partial right-sided pyopneumothorax.

THE International Congress of Comparative Pathology, which is to be held in Rome, has been postponed to the spring of 1924.

THE thirty-third French Congress of Surgery will be held in Paris on October 6th, 1924, under the presidency of Professor Tuffier. Professor Roux has been elected an honorary member. The following questions will be discussed: (1) Results of treatment of simple fracture of the neck of the femur, introduced by MM. Dujarrier and Julet. (2) Indications for surgical treatment of fibroids, introduced by MM. Robineau and Tixier. (3) Pre-operative and post-operative treatment and anaesthesia in gastro-intestinal affections, introduced by MM. Lardennois and Lambert.

Reviews.

DIGITALIS AND ITS USES.

THE Netherland State Institute for Pharmaco-therapeutic Research, a body which resembles somewhat our Medical Research Council in some of its activities, has organized the publication of a series of monographs on important drugs; one of these on digitalis and its therapeutic uses,[1] published in Dutch by a group of Dutch authors, has been translated into German by Professor P. NEUKIRCH. The aim of the volume is to give practitioners and pharmacists a general account of the nature and action of digitalis and its allies, and the chemistry, the pharmacological action, and the therapeutic action of digitalis are described in turn. In the introduction a very interesting account is given of the work of the English physician Withering, the discoverer of the therapeutic action of digitalis, and an excellent portrait of him is reproduced.

In the chemical section the history of the isolation of the digitalis glucosides is related. They were isolated in an impure form nearly a hundred years ago, and since then there has been almost continuous research on this subject. The results have been very contradictory because several glucosides are present and all are relatively unstable, consequently a remarkably large number of different products have been obtained. The book gives a very clear summary of the prolonged and confusing controversies that have arisen over this question. While there is no doubt that both a water-insoluble glucoside (digitoxin) and one or more water-soluble glucosides (digitalein) can be obtained from the leaves of digitalis, the writers point out that it is not certain to what extent these substances are artefacts produced in the processes of extraction, and that it is possible that certain methods of extraction may change the water-soluble substances into the water-insoluble form. An account is given of the various pharmacopoeial preparations of digitalis, and the nature of the active principle present in each form is described. The article concludes with an interesting description of the various proprietary preparations of purified digitalis principles and the composition and relative value of these are discussed.

In the section devoted to the pharmacological action of digitalis the account of the earlier work is full, and the experiments which have been made to show the effect of digitalis on the force and duration of the ventricular contraction are described clearly. Very little, however, is said concerning the influence of digitalis on the rate of conduction of the wave of contraction in the heart, and no mention is made of any of the work of Lewis on this subject after 1911.

The chapter on the therapeutic use of digitalis similarly reveals that the authors have a conception of the action of digitalis quite different from that held in this country. In England the work of Mackenzie and Lewis has led to the belief that the action of digitalis in benefiting auricular fibrillation is of considerably greater importance than all its other actions put together. In this book, however, only a page is devoted to auricular fibrillation, and the chief question discussed is the effect of digitalis in strengthening the force of the heart's contraction in such conditions as acute pneumonia, etc. In fact, it is not unfair to say that the opinions expressed concerning the pharmacological and therapeutic actions of digitalis are nearer the opinions held in this country fifteen years ago than to those of to-day. A discussion of the relative curative values of the different pharmacopoeial preparations of digitalis reveals the fact that powdered digitalis and infusion of digitalis are the two preparations in chief use in Holland, whereas in England and America chief reliance is placed on the tincture. This difference appears to be merely the result of custom, for equally good results can be obtained with either kind of preparation. The whole is interesting in its way, but the views expressed by the writers on many points cannot be accepted; they have not taken sufficient account of the recent English and American work.

[1] *Die Digitalis und ihre therapeutische Anwendung.* Edited by Professors A. A. Hijmans van den Bergh and R. Magnus, and Drs. U. G. Bijlsma, J. S. Meulenhoff, and M. J. Roessingh. Translated into German by Professor Dr. P. Neukirch. Berlin: Julius Springer. 1923 (Roy. 8vo, pp. 119; 32 illustrations. 1.35 dollars.)

BLOOD PRESSURE.

DR. J. F. HALLS DALLY'S manual on *High Blood Pressure: Its Variations and Control*[2] is intended for general practitioners who are not prepared to explore the copious scattered and to some extent inconclusive literature of the subject. It combines in a readable form a great deal of information with the results of much practical experience. With regard to the choice of a sphygmomanometer Dr. Dally says that no matter what claims are put forward by enthusiastic inventors or manufacturers of anaeroid instruments, no instrument can give such exact readings over a long period of time as a simple and accurately made mercurial sphygmomanometer. Descriptions of the various forms of instrument are illustrated and figures of their mechanisms and indications of the features that are undesirable in an instrument are given, so that such sphygmomanometers may be avoided. After reproducing tables of the blood pressures normal for various periods of life, Dr. Halls Dally gives his simple rules; thus for the ages of 20 to 60 the standard systolic pressure equals 120 *plus* one-fifth of the age; at the age of 60 the standard systolic pressure is 135, and for each year above this up to and including 80 add 1 mm. Hg. The relations of hyperpiesia and arterio-sclerosis are fully considered, and attention is directed to the information to be obtained from examination of the conjunctival blood vessels as a substitute for ophthalmoscopic detection of changes in the retinal vessels.

The control and treatment of high blood pressure are discussed under three headings according to the conditions present; thus the patients showing simple high blood pressure (hyperpiesia), cardio-vascular (arterio-sclerosis), and renal (nephro-sclerosis) symptoms are considered separately. Of the numerous drugs suggested for intestinal disinfection four only have seemed of value: the official thymol, the benzene derivatives dimol and benzyl benzoate, and garlic. There are special chapters dealing judiciously with the blood pressure in pulmonary tuberculosis and in relation to examinations for life assurance. The whole subject is reviewed in a thoroughly up-to-date manner, and as the book is written in an easy and interesting style it deserves, and no doubt will achieve, popularity.

MEDICAL BIOMETRY.

THE art of statistics and the mathematical theory of probability—its first cousin—are better provided with textbooks than most branches of knowledge. It is very unlikely that anyone else will write as good a textbook of general statistics as that of Mr. Yule or a better book on probability than Professor Czuber's; but when we difference ourselves within a narrower circle and seek a good book on the specifically medical aspects of statistical methodology the case is altered. Both Sir Arthur Newsholme and Dr. Prinzing have written books which give the reader sound instruction in the data and some of the problems of the medical statistician, but both have refrained from a discussion of biometric methods. Professor Whipple went a step further and did excellent service, but there is something of the atmosphere of a railway junction about his little manual: one is hurried along and fearful of missing many important trains.

Professor RAYMOND PEARL has now entered the field. Like Mr. Yule before him, Professor Pearl has not joined the ranks of textbook writers before having placed his reputation as a first-hand investigator beyond cavil or before having learned by teaching how one must teach. We should therefore have expected him to produce a good textbook, and we have not been disappointed.[3] He is under no illusions whatever as to the probable mathematical knowledge of his public, whom he neither perplexes with algebra nor treats with an exasperating condescension. Professor Pearl approaches the subject by the historical route. He first shows what the pioneers aimed

[2] *High Blood Pressure: Its Variations and Control.* A Manual for Practitioners. By J. F. Halls Dally, M.A., M.D., B.C.Cantab.; M.R.C.P.Lond. London: William Heinemann (Medical Books), Ltd. 1923. (Demy 8vo, pp. xii + 155; 23 figures. 10s. 6d. net.)

[3] *Introduction to Medical Biometry and Statistics.* By Raymond Pearl. Philadelphia and London: W. B. Saunders Co. 1923. (Med. 8vo, pp. 379; 71 figures. 25s.)

at and then describes practically the methods by which modern biometricians can solve at least some of the problems which our predecessors dreamed of solving. Medical men have complained that the delectable city of the statistician is surrounded by a barbed wire entanglement of algebra and that the usual welcome accorded a visitor who attempts to creep under the wire is a shower of bombs discharging gamma functions, determinants, and other poisonous gases. Professor Pearl has cut a path through the wire and provided gas masks. That some of the denizens of the city will be able altogether to refrain from bombing the visitors, and that the gas masks will be entirely impervious to the fumes, are propositions we are not prepared to maintain. We can see, in the mind's eye, hands reaching out to the store of bombs when sundry philosophers chance on Professor Pearl's calculation of the probability that the sun will rise to-morrow. The terrible spectre of "spurious correlation" which haunts all those who have to correlate rates may squeak and gibber over the interpretation of such examples as that of page 329. For our part, however, we think Professor Pearl entirely justified in refraining from highly technical discussions. Without courage one arrives nowhere. No medical man could read this book without learning a great deal, very few could read it without becoming interested in the subject. In other words, Professor Pearl has succeeded, and we congratulate him heartily.

PSYCHO-ANALYSIS.

A Critique of Psycho-analysis.

DR. JOHN T. MACCURDY has written a book entitled *Problems in Dynamic Psychology*,[4] in which he subjects the theories of Freud to a critical discussion. The author differs from most critics of Freud in that he is himself a professed Freudian, and has had considerable experience of psycho-analysis from the practical standpoint. He has discovered from the study of Freud's writings and from his own observations certain limitations and inconsistencies in psycho-analytic formulations, and he feels that the greatest service which can be done to psycho-analysis to-day, and the most practical form for tribute of gratitude to Freud to take, is the dispassionate criticism of his work.

In the first part of the book the author deals critically with Freud's views on the unconscious, instinct, sex, repression, and ego-libido, dementia praecox and paranoia, depression, the neuroses, emotions, and dreams. The work of two other psycho-analytic writers, Ferenczi and Burrows, is also discussed in a section dealing with the preconscious phase of development. These discussions presuppose an intimate knowledge of the intricate details of psycho-analytic theory, and the writer's arguments will only appeal to those readers who are versed in Freud's terminology and to whom it conveys a meaning. The ordinary reader will find Dr. MacCurdy's criticisms difficult to understand, and we could have wished that he had done more to clarify the obscurities of Freud's teaching. A lengthy chapter is devoted to a criticism of the theories of the late Dr. W. H. R. Rivers as outlined in his book on *Instinct and the Unconscious*. The author's criticisms are almost wholly adverse, but he, nevertheless, regards this book as extremely valuable in its suggestiveness, and thinks that it may prove to be a landmark in the evolution of psychopathology. Dr. MacCurdy's own views are given in the concluding chapters, which are thus constructive rather than critical. He is dissatisfied with the exclusive importance attached by Freud to the sexual as an explanation of practically all psychopathological phenomena, and his experience has led him to the view that any general formulations must include the factors of social and ego-instincts as well as sexual. Dr. MacCurdy's studies of these instinctive tendencies and their interactions are of value and interest, and include a number of observations which the psychopathologist will find helpful.

[4] *Problems in Dynamic Psychology: A Critique of Psychoanalysis and Suggested Formulations.* By John T. MacCurdy, M.D. Cambridge: The University Press; New York: The Macmillan Co. 1923. (Cr. 8vo, pp. xv + 333. 12s. 6d. net.)

Group Psychology.

In a book the English translation of which has the title *Group Psychology and the Analysis of the Ego*,[5] Professor SIGMUND FREUD subjects the theories of Le Bon, MacDougall, and Trotter on the psychology of the crowd and the herd instinct to a critical examination. An interesting feature of the book is that it contains a clear statement of what the author means by libido or sexual energy. He writes as follows:

"We call by that name (libido) the energy of those instincts which have to do with all that may be comprised under the term 'love.' The nucleus of what we mean by love naturally consists (and this is what is commonly called love, and what the poets sing of) in sexual love with sexual union as its aim. But we do not separate from this on the one hand, self-love, and on the other, love for parents and children, friendship and love of humanity in general, and also devotion to concrete objects and to abstract ideas."

From this wide conception of libido or sexual energy—so wide as obviously to embrace the whole field of emotional attraction—Freud proceeds to develop the view that love relationships (or, to use a more neutral expression, emotional ties) constitute the essence of the group mind. He combats the view that the "social" or "herd instinct" is an irreducible and primitive one, and endeavours to show that it is possible to discover the beginnings of its development in the emotional ties of the family group. The study of the affective relationships between one person and another leads the author into a discussion as to the nature of hypnosis from the standpoint of psycho-analytic theory. He also gives a complex analysis of the process of "identification," and illustrates the importance he attaches to this process by examples taken from morbid mental states, especially some forms of melancholia. The book contains some of Freud's most recent views and is of interest on that account.

Psychotherapy.

Three lectures delivered by Dr. WILLIAM BROWN at King's College, London, have been published in a small book entitled *Talks on Psychotherapy*.[6] The first lecture deals with dissociation, hypnotism, and suggestion; the second with psycho-analysis, abreaction and transference, and the modern development of the libido theory; and the third with Freud's recent views on the psychology of melancholia, auto-suggestion, and the will. Certain obscure passages are included in the first lecture, where the author considers the relation between mental and spiritual healing. A distinction is here drawn between mind and spirit, and Dr. Brown does not make it clear whether he means by the latter term a creative life principle or a mystical essence which is part of an external spiritual power. In the former sense the word "spirit" might be legitimately used in psychology; it merely implies that life and mind are creative rather than mechanistic, and there are a number of facts in regard to the behaviour of living organisms which might be held to justify the erection of a psychology on a non-mechanistic basis. In the latter sense, however, the word "spirit" would seem to be out of place in psychological nomenclature; it is not a concept based upon the observation of facts; rather is it one derived from certain feelings, experienced by individuals at moments of mystic insight, of being one with an ultimate spiritual reality. The introduction of this definitely religious concept into psychological theory and practice would appear to be an innovation of doubtful value. The book as a whole, however, is clear, readable, and interesting, though it naturally only touches the fringe of the subjects considered by the author.

HEREDITY AND EUGENICS.

THE greatest obstacle in the way of an author who compiles a treatise on heredity is to avoid both the dullness of a catalogue and the minute detail of a memoir, or rather a collection of memoirs. Professor GATES[7] in his book on

[5] *Group Psychology and the Analysis of the Ego.* By Sigm. Freud, M.D., LL.D. Authorized translation by James Strachey. London and Vienna: The International Psycho-Analytical Press; London: G. Allen and Unwin, Ltd. 1922. (Roy. 8vo, pp. 134. 7s. 6d. net.)

[6] *Talks on Psychotherapy.* By William Brown, M.A., M.D.Oxon., D.Sc., M.R.C.P.Lond. London: University of London Press, Ltd. 1923. (Cr. 8vo, pp. 96. 2s. 6d. net.)

[7] *Heredity and Eugenics.* By R. Ruggles Gates, Ph.D,. F.L.S. London: Constable and Co. 1923. (Demy 8vo, pp. x + 288; 33 figures. 21s. net.)

Heredity and Eugenics has not altogether avoided the former danger; it cannot, indeed, be avoided in a volume of 250 pages without devoting disproportionate attention to some one phase of the subject or line of research. His book is a useful guide to the literature, for its plan is to recapitulate briefly the conclusions of the authors cited and to indicate some of the difficulties of interpretation. The logician will probably think that in many instances the evidence that the traits considered are inherited is incomplete, since it amounts to no more than the statement that in certain pedigrees such or such a character recurred in several generations. The evidential value of these concurrences depends on the assumption that the characters considered occur so infrequently that their independent existence in several members of one stock is an improbable event, less probable than that a common organic factor was responsible. In some of the cases the alternative may be accepted without further evidence, but not in all. Again, in instances of purely functional traits, the factor of common environment cannot be ignored.

Professor Gates justly points out that various effusions of psychopathologists—usually, we think, the less intelligent followers of the psycho-analytic cult—"frequently fail to appreciate that any element of mental inheritance exists." He instances the lucubrations of Kempf, who seeks to explain the development of Darwin's genius on psycho-analytic lines and descants on his mother-fixation and other such topics. As Professor Gates remarks, "it ought to be obvious that if Darwin had been a person of mediocre ability, neither his mother attachment nor anything else could make of him a great naturalist." This is one of the obvious facts that some psychologists are constantly overlooking.

Professor Gates has written a useful book which, we think, will be valuable to the busy medical man who has no time to consult the enormous literature of the subject.

NOTES ON BOOKS.

THE series of *Optotypes* by GREEN and EWING[8] present some new features; much of the work on the series was done in 1913 before the death of Dr. Green. The types embody the fundamental theory and classical notation of Snellen; the variations are conceived with a view to eliminate unequal ratios of gradation, by adopting a gradation in geometrical progression—that is, 1, 2, 4, 8, 16, 32, 64; to simplify the routine and to enlarge the scope of trustworthy clinical determinations by providing varied sequences and arrangements of the letters and of other characters; and to minimize the differences in the legibility of the several test letters through a conservative change of the typographical character. The letters are printed in block capitals on each side of the cards, and the pictographs for illiterates are treated similarly; the pictures are simple and show such common objects as a teapot, a jug, a cross, a square, and a circle. It would be a good plan to print these optotypes and the pictographs on long vertical cards, which could be conveniently placed in the trial drum in general use; for rapid testing a series of thirty-five plates is rather a large one to juggle with; the letters are certainly very good and legible, and if the surgeon is concerned for any reason to determine the maximal acuity of any case, they will be found useful and trustworthy; we have got 6/4 quite easily with them.

Mr. J. T. HACKETT has enjoyed the uncommon pleasure of seeing his *Commonplace Book* put into print. The first edition was published in Adelaide in 1919; the first edition published in England appeared, we gather, in the same year, the second and third in 1920, so that the book pleased the public; the fourth edition,[9] larger than the first, has been issued this autumn. The extracts, which show wide reading and catholic taste, have been thrown together without any order, a want of method the author justifies on the ground that it introduces the element of surprise. Two observations suggest themselves. The first is that the beauty of verse must depend in part on the cadence produced by the mere choice and order of words, for in some of the most beautiful lines in the English language the thought is neither very profound nor very original. The other is that the eighteenth century knew better how to pack much matter into few words than any English writer of to-day or for many days. Pope, for example, as some of Mr. Hackett's extracts show, could sometimes equal the polished gems of the French epigrammatists. The author has inserted a number of explanatory notes, and also a few longer commentaries which are not quite so appropriate.

The *Medical Directory*[10] for 1924 has been issued, and the reviewer may well wonder what he can find to say new about an annual which has so thoroughly established itself in the esteem of the profession. It contains 1,297 more names and 26 more pages than the issue for last year. We welcome the list of honorary secretaries of Local Medical and Panel Committees, which now seems to have become a standing feature, but regret the continued absence of the summary of laws affecting the medical profession. Long experience has enabled the editors to make the volume as nearly perfect as a yearbook in this changing world can be. From the table showing the numbers of the profession year by year since 1915 it appears that there are now rather more registered practitioners resident abroad (7,648) than in London (7,239); this is the third year in succession in which this phenomenon has presented itself, but the list of practitioners beyond the seas does not include those who hold degrees from Dominion universities but have not taken diplomas or degrees in the home countries. The number of practitioners in the provinces of England, in Wales, Scotland, and in Ireland, all show small increases; in fact the only decrease is in the Services—Navy, Army, Air Force, and Indian—and even there the decrease is small, from 3,458 to 3,452. In the *Directory* for 1914 the number was 3,356.

Messrs. John Wright and Sons, Ltd., of Bristol, have sent us a copy of one of their visiting lists—*Wright's Improved Physicians' and Surgeons' and Consultants' Visiting List*, arranged by Mr. ROBERT SIMPSON, L.R.C.P., L.R.C.S. The lists are made in six sizes to accommodate the names of from 40 to 240 patients each month. By means of an ingenious system of half-page interleaving patients' names need only be entered once a month, thus economizing the practitioner's time. A number of useful tables have been incorporated in the book, together with much valuable information, a consultant's record, and space for notes and cash accounts. The visiting list is not much larger than an ordinary pocket-book; it is a very handy and useful little volume. The prices range from 10s. 6d. to 13s.

[8] *Optotypes: Consisting of Test-Letters and Pictographs for Measuring the Acuteness of Vision.* By John Green, M.D., LL.D., and A. E. Ewing, A.M., M.D. London: Henry Kimpton. 1923. (Med. 8vo, pp. 24; 19 cards containing letters, tests, etc. 25s. net.)

[9] *My Commonplace Book.* By J. T. Hackett. Fourth edition. London: Macmillan and Co., Ltd. 1923. (Demy 8vo, pp. xx+438; 12s. 6d. net.)

[10] *The Medical Directory* for 1924. London: Messrs. J. and A. Churchill. 36s. net.

PREPARATIONS AND APPLIANCES.

Oleo-Bi.

IT was generally thought that the organic compounds of arsenic of the type introduced by Ehrlich were specific in their effect on the *Spironema pallidum*. Slowly it became clearly apparent that this assumption must be abandoned. Other metallic compounds have been found to possess similar efficacy, and there is now no doubt that the discoveries of Ehrlich did no more than open the gate to a rich field for exploration. In this connexion bismuth has attracted particular attention, and the remarkable fact has emerged that effective results are obtained from very simple compounds. Acting on decisive successes obtained with these the Hoffmann-La Roche Chemical Works (7, Idol Lane, London, E.C.3) have engaged in the manufacture of two such preparations, named Oleo-Bi and Tarto-Bi. The former consists of a suspension of bismuth oleate in oil, and the latter is an aqueous solution of sodium bismuthyl tartrate, a substance of analogous constitution to tartar emetic. A specimen of the Oleo-Bi submitted to us has been examined analytically with satisfactory results as to the chemical purity and the quality and permanence of the emulsion.

A New Michel Clip Remover.

Dr. Frank H. Edwards (Shrewsbury) writes: I have often wished that there were a simple way of removing Michel clips, as the two methods commonly used have great disadvantages. In one the under blade of a special pair of forceps has to be forced up against the actual wound; in the other, where two hooks are used, the method is clumsy and the hooks are not easy to manipulate. I have designed a pair of forceps angled twice on the flat with two points instead of blades, one point being 1/16 in. longer than the other. These points are separated by closing the handles and are normally held together by a strong spring. The method of use is to insert the longer point into an eye of the clip, and while this point is steadied the shorter one can easily be fitted into the other eye. The handles are then closed and the clip is stretched out flat, being then easily removed. There is no discomfort to the patient and the forceps are very easy to use. Messrs. Mayer and Phelps have made the above instrument for me.

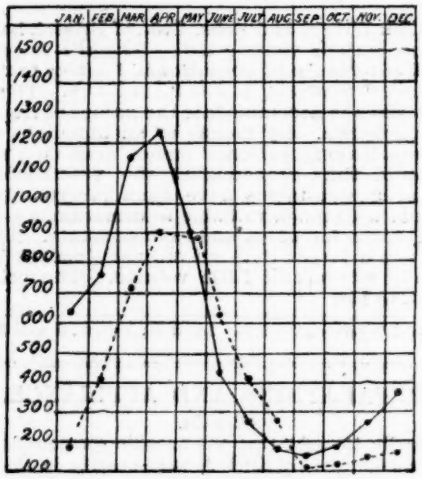
BLACKWATER FEVER:

ITS ETIOLOGY AND PARASITOLOGY.

In our last issue we referred briefly to the recent research activities of the London School of Tropical Medicine. During the past two years Dr. J. Gordon Thomson, Director of the Department of Protozoology of the School, has been engaged upon an inquiry into the etiology of blackwater fever in Southern Rhodesia, and his preliminary report has just been issued.

In all parts of the world where pernicious malaria is rife blackwater fever is known, while it does not occur where there is only the benign tertian type of malaria. Although this is presumptive evidence that pernicious malaria (*P. falciparum*) is associated with blackwater or haemoglobinuric fever, yet many clinicians and not a few investigators have been attracted to the hypothesis that there is a special protozoan or spirochaetal parasite. The most recent and apparently convincing evidence in this direction was the work of Blanchard and Lefrou, who by a special technique claimed to have demonstrated a new spirochaete, named by them *Spirochaeta biliohaemoglobinuriae*. In an earlier communication* from South Africa

MONTHLY INCIDENCE OF MALARIA AND BLACKWATER FEVER, SOUTHERN RHODESIA.



Hospital admissions 1913 to 1922 inclusive.

●———● Malarial curve.

●- - - -● Blackwater fever curve (this curve is multiplied by 10).

Total malaria treated in hospitals, 6,608.

Total blackwater fever treated in hospitals, 492.

Dr. J. G. Thomson conclusively showed by the study of a series of fifteen cases from the first day of illness to its termination that true spirochaetes did not occur, but that the Blanchard-Lefrou technique gave what he has termed "pseudo-spirochaetes"—that is, artefacts or filaments showing Brownian movement and resembling spirochaetes. These non-living pseudo-spirochaetes could also be recovered by the same technique from cases of malarial anaemia and from the blood of cattle with piroplasmosis.

In his new preliminary report† Dr. Thomson frankly adopts the view that blackwater fever is due to infection with the malignant tertian malaria, which gives rise to 96 per cent. of the malaria cases in Rhodesia, and is of the same morphology as in Panama and Macedonia, although there are variations in individual infections. The close monthly relationship in the rise and fall of these two diseases is shown in the striking chart here reproduced of the admissions to the hospitals of Southern Rhodesia for the past ten years of 6,608 cases, and 492 cases of blackwater fever.

In discussing this chart Dr. Thomson makes the following observations:

By making an analysis of the hospital statistics of Southern Rhodesia for ten years (1913 to 1922 inclusive) I have been able to represent graphically the monthly relationship between malaria and haemoglobinuric fever. This chart shows clearly that as the incidence of malaria rises the cases of blackwater increase, and as the malaria falls we have a corresponding diminution of blackwater fever.

The cases of malaria commence with the first rains at the onset of summer in October, and steadily increase during November, December, January, February, and March, finally reaching a maximum in April. The first and last three months of every year supply the rainfall and ideal temperature required for the rapid multiplication of anopheline mosquitos. Observations and collections of anopheline mosquitos showed that these were most numerous during the month of April. . . .

It will be noted that the worst months for blackwater fever are April, May, and June, as it is during these months the full effects of malaria occur, and the sudden drop in the incidence of blackwater during the months of July, August, and September corresponds in a remarkable manner to the diminution of malaria and the disappearance of mosquitos.

Such a co-relationship as indicated by this chart over a period of ten years, which includes 6,608 cases of malaria and a total of 492 cases of blackwater fever, shows definitely that malaria and haemoglobinuric fever are either one and the same disease or that both diseases are conveyed by the same biting insect or by insects with similar seasonal and domestic habits.

The fact that blackwater fever occurs principally amongst persons who live in unprotected houses and are careless about mosquito nets gives us positive evidence that this condition is associated with the bites of mosquitos, and reference to the chart proves that it is undoubtedly associated with the period when anopheline mosquitos are most active. It is important to note that a temperature of over 61° F. is necessary for the successful development of the sexual cycle in the anopheline female, and . . . in October, November, December, January, February, and March the mean minimum temperature never falls to 61° F., and therefore ideal conditions exist for the rapid production of infected mosquitos during these months.

It is well known that malaria parasites generally disappear from the peripheral blood after the onset of blackwater, and this has been regarded by some as evidence that the disease cannot be due to the malaria parasite. Dr. Thomson was so fortunate during his inquiry as to examine 23 cases prior to the onset of blackwater symptoms, and in every case was able to demonstrate the presence of malaria parasites, although these disappeared with or shortly following the commencement of haemoglobinuria. He recognizes a condition named the "pre-blackwater fever type"; in it a small dose of quinine will actually precipitate haemoglobinuria, and it develops in patients suffering from chronic malaria who take quinine irregularly and inefficiently. While quinine will cure malaria and so prevent blackwater it is useless to attempt to cure malaria with a few doses of quinine given once a week or fortnight, for this only results in chronic malaria, and so in a highly dangerous condition which may fulminate in blackwater fever.

A study of the anopheline mosquitos of Rhodesia implicates *Anopheles costalis* as the chief carrier of malaria. This mosquito abounds all over Southern Rhodesia, is wild in its nature and avoids large towns, but breeds in pools of water in the veld and in the margins of slowly flowing spruits. It is, therefore, a problem of grave complexity and menace for the new Government of Southern Rhodesia. Happily the publication of Dr. Thomson's report among the earliest of the White Papers laid before the Legislative Council is a good augury that those undertaking the new administrative responsibilities are alive to the wisdom of early efforts to ameliorate the health conditions of the newest apanage of the Crown.

* The Common Occurrence of Pseudo-spirochaetes in the Blood of Blackwater Fever Cases and of Normal Human Beings and Animals when using the Technique of Blanchard and Lefrou. *Journal of Tropical Medicine and Hygiene*, August 1st, 1923.

† Preliminary Report on the Results of Investigations into the Causation of Blackwater Fever in Southern Rhodesia. By J. G. Thomson, M.B., Ch.B. Presented to the Legislative Council of Rhodesia, 1923. Salisbury: Printed by the Government Printer.

British Medical Journal.

SATURDAY, DECEMBER 8TH, 1923.

THE LIMITATION OF PHYSIOLOGICAL STANDARDIZATION.

In a lecture delivered recently to the Pharmaceutical Society Mr. H. A. D. Jowett, D.Sc., of the Wellcome Chemical Works, who has had long experience in the manufacture of drugs which can at present only be standardized by the physiological method, emphasized the fact that the method is inherently inaccurate and therefore unsatisfactory. It should be regarded merely as a stopgap, and researches pushed forward to discover satisfactory ways of isolating pure chemical bodies. Nevertheless physiological standardization is a great advance on no standardization at all, and is usually accurate within 20 per cent. This margin of error is wide, but the drugs to which it is applied are in the main those whose active principles are so unstable that they have not yet been isolated or estimated quantitatively, so that but for physiological standardization there would be no guarantee that the finished product, made from the raw material of such drugs, would have any therapeutic activity whatever. The chief drugs which require physiological standardization are ergot, the digitalis group, pituitary extract, insulin, and the organic arsenicals. Of these the first is a rather special case; in it standardization is especially unsatisfactory because it contains a variety of active principles, and it has not yet been decided which is of chief therapeutic importance. Under such conditions no form of standardization can be of any great value, so that the unsatisfactory state of affairs as regards ergot cannot be attributed to the methods used, since the position would not, for the reason given, be materially improved did we possess exact chemical means of standardization for every constituent in the crude drug.

The chief objection to physiological standardization in the other cases is its inherent inaccuracy; there are numerous reasons for this. One is that if intact animals are used the worker is at the mercy of variations among individual animals, for living animals refuse to be standardized. This difficulty can only be evaded by using very large numbers of animals; not only is this very expensive, but there remains the problem of seasonal variations in susceptibility. On the other hand, if isolated organs are used the least variation in technique may produce enormous errors. Another difficulty is to establish some unvarying standard with which to compare the drugs tested. In the case of digitalis ouabain is used, but unfortunately it is very difficult to obtain. A non-variable standard pituitary preparation has not yet been put on the market, although hopes are expressed that such a preparation may soon be forthcoming.

The outbreak of war cut off the former German supplies of the arsenobenzol group of compounds, and the results of any undue toxicity in these drugs would have been so serious that the Board of Trade, before allowing any batches manufactured in this country to be sold, determined that they must be submitted to biological tests. The establishment of a suitable toxicity test was very difficult. With novarsenobenzol a fresh difficulty arose; a product was obtained which, though of very low toxicity, had also a very low curative power. This led to the establishment of a therapeutic test, and now the products have to satisfy biological tests for undue toxicity and for satisfactory therapeutic potency. The present position, as summarized by Dr. Jowett, is that while the biological test undoubtedly eliminates any product having an undue degree of toxicity or of low curative efficiency, yet it is possible that some batches just as good as those passed are rejected owing to variations in the animals used. The manufacturer has to face the awkward situation that the drug he produces must satisfy tests which have a possible error of about 30 per cent. Dr. Jowett mentions one instance in which, when two samples of the same batch of novarsenobenzol were submitted, one sample was passed and the other rejected. Nevertheless he concludes that, despite these limitations and the accident of experimental error, the biological control of these potent remedies is most desirable; it should, however, be recognized that manufacturers are put to serious inconvenience and expense, in the first place by not feeling confident whether their preparations will be passed either by their own or the official biologists, and secondly, by finding that improvements in the process are rendered difficult. It has been pointed out that a more accurate method of testing is highly desirable, as the losses caused by an error of testing in the case of such costly material as insulin may be considerable. While there is no need to feel alarm about the efficiency of physiological standardization it is necessary to guard against the assumption that it has a greater degree of accuracy than it actually possesses. The limitations of the method emphasize the importance of replacing it as soon as possible either by chemical methods, if satisfactory ones can be produced, or, better still, by the employment of the pure active principles.

This is a very fair summary of the situation from the manufacturer's point of view. Medical men will naturally emphasize the point that some form of standardization is essential for all potent drugs, and that most particularly it is necessary in those cases where the active principles are so unstable that they cannot be isolated quantitatively. Obviously it is in these cases that there is the greatest danger of obtaining inactive products, and it is in them that physiological standardization is employed.

Physiological standards have been adopted in the *United States Pharmacopoeia* in the case of cannabis indica, aconite, digitalis, strophanthus, squills, adrenaline, pituitary extracts, and antitoxic serums. A conference was held at Edinburgh this summer under the auspices of the League of Nations, at which all the chief countries of the world were represented; it endeavoured to fix international standards for biological assay. So far nothing has been done in the *British Pharmacopoeia* in this direction to protect the medical public.

THE NERVOUS CHILD.

THE discussion at the Annual Meeting of the British Medical Association at Portsmouth (BRITISH MEDICAL JOURNAL, November 24th, p. 963) and that on the same subject at the meeting of the Medical Officers of Schools Association reported this week (p. 1098) mark the extent of the change which has occurred of late years in the attitude of adults in general and of the medical profession in particular towards children. In the eighteenth century, in the Spartan Wesley family, the children, even babes, were not allowed to cry, and they did not. In those days and for long afterwards

large families were the rule, and much attention could not be given to individual children, who were allowed to a greater or lesser extent to grow up as best they might, subject to certain rules which must not be broken without incurring penalties. Nowadays, except with the poor, the case is altered. Families are small, not a few consist of two or three children, while those of single children are by no means uncommon. In Dr. H. C. Cameron's opening paper at Portsmouth there are many references to such families in which the child receives too much attention; if he or she is of a neurotic diathesis this is apt to lead to bad results. The picture drawn of the child who exhibits the phenomenon of negativism, and responds to the obvious wishes of his mother and nurse by opposition, as, for instance, when he refuses to eat simply because they are overdesirous that he should do so, corresponds pretty closely to the picture of the spoilt only children —the Tommy Mertons—of our great-grandfathers, although we question whether wilful enuresis, which according to several speakers may be a symptom of negativism, was ever a characteristic of the merely spoilt child. This symptom is but one piece of evidence of the want of proper development of control by the nervous system, another manifestation of which is contrariness in general. Further research into the functions of the endocrine glands may demonstrate as a fact what is now little more than a surmise—namely, that many manifestations of nervousness and ill control are caused by defects of internal secretions. Meanwhile it is significant that several speakers in the discussions mentioned the good effect of thyroid feeding in some cases of enuresis. No doubt children are susceptible to suggestion, which may be usefully employed in treatment. They are often very reticent as to their troubles, and fear of ridicule or reproof may prevent a child from giving the real reason for his fears or for his conduct. To gain the confidence of a nervous child is often a hard task, but its attainment is a most important step in relief or cure.

A reader of the reports of these discussions cannot fail to be struck by the extent to which the physician and the pedagogue have invaded one another's territory, so that it is very difficult to say where the respective frontiers are situated. A large part of the field is neutral ground, but it is by no means unoccupied, for both parties work amicably in it. The association of lordosis and other compensatory deformities of posture, due to lack of muscular tone, especially in the abdominal musculature, is interesting, but it is, we venture to think, of secondary importance, an effect of the abnormality of the nervous system just as much as are the mental attitudes and the consequent defects of conduct. Normal and abnormal postures in the erect position have been less studied in this country than in the United States, where much attention has been given to the subject, especially by orthopaedic surgeons. The erect postures of many hundreds of university students have been recorded and classified, and for some years a society has existed under the title of the Posture League, the object of which is to inculcate and encourage good and discourage bad postures. Those American surgeons who have made special studies of the effects of lordosis, kyphosis, and enteroptosis do not, however, appear to have discovered any obvious correlation between these defects and the neuroses of adolescence.

Environment has much to answer for, but the observations recorded by Drs. Inman and Harford on the connexion between squint, left-handedness, and the more commonly recognized syndrome of the nervous child, remind us how far-reaching and often inherent are the causes on which they depend. We agree with Dr. Crichton Miller that much harm may result from overdoing warnings against masturbation. A nervous boy may be made miserable for years, because he has been led to think that his whole future is dangerously compromised by this habit, which should be discouraged by all possible means, but not to the extent of frightening the patient into the belief that he is socially damned because he cannot entirely restrain this propensity.

Charles Lamb was at one time under restraint in an asylum, and his sister, as is well known, was afflicted all her life by attacks of mania, in one of which she committed homicide. Supremely sane though all his writings be, yet there can be no doubt of his neurotic diathesis. In his essay on "Witches and other Night Fears" he has left us a moving picture of the sufferings of the nervous but not spoilt child. "I was terribly alive," he says, "to nervous terrors. The night-time, solitude and the dark, were my hell: I never laid my head on my pillow, I suppose, from the fourth to the eighth year of my life, without an assurance which realized its own prophecy of seeing some frightful spectre." Evidently Lamb realized the importance of auto-suggestion, although that term had not then been invented. He goes on to say: "Parents do not know what they do when they leave tender babes to go to sleep alone in the dark! The feeling for a friendly arm, the hoping for a familiar voice, when they wake screaming and find none to soothe them—what a terrible thing it is for their poor nerves! Dear little T. H., who of all children has been brought up with the most scrupulous exclusion of every taint of superstition, who was never allowed to hear of goblin or apparition, or scarcely to be told of bad men, or to read or hear of any distressing story—finds all this world of fear, from which he has been so rigidly excluded *ab extra*, in his own 'thick coming fancies'; and from his little midnight pillow, this nurse-child of optimism will start at shapes, unborrowed of tradition, in sweats to which the reveries of the cell-damned murderer are tranquillity." The sufferings of T. H. (Thornton Hunt) were probably increased if not caused by the very means intended to prevent them—that is to say, the over-solicitude of his parents. The views of Charles Lamb on the evil effects of making nervous children sleep in the dark and on the spontaneous or inherent origin of night terrors are not generally shared by modern pediatrists and psychologists.

Most of the speakers at both meetings were agreed as to the injurious effects wrought by injudicious and fussy parents on the nervous child, and it would seem that it is necessary to direct attention to the parents' education as well as to that of the child, through some such body as the Parents National Educational Union, as was suggested by Dr. Helen Boyle. The problem is very far from a solution, but the body of opinion and experience brought together in these discussions should be of great value; its publication cannot fail to encourage progress, although it is evident that in this special branch of medicine diagnosis has at present far outstripped treatment. Moreover, a better instance than this could, we think, be found of the gradual divorce which has taken place between the physician and what used to be popularly known as "physic." Speaker after speaker deprecated the use of drugs (unless thyroid extract may be included under that term), and nearly all relied upon what may perhaps be called subjective therapy.

TUBERCULIN AND THE TUBERCULIN DISPENSARY.

In 1909 the Tuberculin Dispensary League was founded with the object of demonstrating the possibility of treating the tuberculous poor by Dr. Camac Wilkinson's method of tuberculin administration. For three years at Kennington, and thereafter at Chelsea, several hundreds of patients passed through the dispensary, and in the opinion of the promoters of the scheme appear to have benefited greatly. Owing partly to a desire for financial assistance, and also for more public recognition, the executive committee of the league drew up a petition to the Minister of Health requesting that the work should be examined and reported upon. This petition was handed to the secretary of the Medical Research Council, who asked for the submission of a report by the committee of the league on the evidence which had been collected as to the value of the tuberculin treatment. Following the reception of this report the Medical Research Council arranged for an examination of the work, and accordingly deputed three medical men to investigate the work of the dispensary and to express their opinion of the results obtained. So far as can be judged from what Dr. Camac Wilkinson says, these three medical men were not given the benefit of his personal opinion; they were received by the honorary treasurer and by one of the assistant medical officers. The sequel of this inquiry was the preparation of a confidential report which stated that Dr. Camac Wilkinson's system of treatment "did not appear to have claims over other methods of treating tuberculosis either with or without tuberculin which would justify its general adoption." To this Dr. Camac Wilkinson has replied by the publication of an essay on the tuberculin dispensary for the poor.[1]

As may easily be imagined, it is quite impossible to form an unbiased opinion of the reply when one has not had the opportunity of reading the original document to which the reply has been made; and however emphatically he may write, and however pertinent—or otherwise—may be his strictures on other methods of treatment, it is only fair to say that he can scarcely hope to carry conviction to those who are interested merely in ascertaining the facts on which his case is based, for these facts are not provided. It is true a few summary data are given, but owing to their incompleteness they mean very little. We have compared them—as far as it is possible to compare them—with the Bradford statistics,[2] and find that there is no marked superiority to which they may lay claim. But on this we would not place much emphasis. The real point is that there are no figures, so far as we know, which are quite comparable with those from Chelsea, and it is hence impossible to form any adequate opinion on their meaning.

If Dr. Camac Wilkinson is really convinced of the superiority of his method—and of this there is no reasonable doubt—we would advise him to collect the notes of all the patients who have passed through his hands since 1910, to summarize them in the way in which the Midhurst notes were summarized, to obtain their after-histories as fully as possible, and to submit them to the scrutiny of a first-class actuary who may be trusted to draw up an impartial report upon them. Supposing then that this report is favourable we shall be justified in concluding that the results obtained by Dr. Camac Wilkinson surpass those obtained by other physicians. But—and it is important to emphasize this point—we shall not be justified in concluding that these results are due solely to tuberculin. This may well have been one of the factors, but it is obviously not the sole one, for the patients apparently receive much the same general education as to their mode of life as is given in the ordinary tuberculosis dispensaries. In order to prove indubitably that treatment by Dr. Camac Wilkinson's method of tuberculin administration is superior to all other forms of treatment it will be necessary for him to take two series of patients, comparable alike in age, sex, stage of disease, occupation, and place of residence, and to treat them identically, except for the sole difference that one series receives tuberculin injections and the other does not. Only in this way will he be able to prove his case. Until this is done judgement must be reserved.

[1] *The Tuberculin Dispensary for the Poor.* By W. Camac Wilkinson, M.D.Lond., F.R.C.P.; with a preface by Randall Davies, Honorary Treasurer of the Tuberculin Dispensary League. London: Nisbet and Co., Ltd. 1923. (Demy 8vo, pp. 67. 1s. net.)

[2] Medical Research Council Special Report Series, No. 76.

FINSEN LIGHT FOR LARYNGEAL TUBERCULOSIS AND LUPUS VULGARIS.

DR. OVE STRANDBERG, of the Finsen Institute at Copenhagen, delivered an "occasional lecture" at the Royal Society of Medicine on December 3rd on the treatment of rhino-laryngological tuberculosis by Finsen light baths. He was introduced to the audience by the Danish Minister in London (Count Laurvig), who referred to Queen Alexandra's interest in the Finsen method. Dr. Strandberg said that the treatment of rhino-laryngological tuberculosis by means of Finsen light was not entirely new. About nine years ago he published his first few cases, and since that time the number of cases had been greatly increased and the results thoroughly tested. The Finsen bath consisted of an electrical carbon arc light used in one of two sizes. The smaller was an arrangement of three lamps using 20 ampères and 55 volts each, for the treatment of the more serious cases which could not sit up, and the larger embodied two lamps, each of 75 ampères and 55 volts, which made it possible for six or eight patients to be treated at the same time. Patients with tuberculosis of the larynx were placed in the Finsen bath for from ten to fifteen minutes on each of the first few days, and the application slowly increased up to the full dose of two and a half hours every alternate day. Patients with lupus vulgaris, if their general health was good, could begin with thirty to forty-five minutes' application with the large lamps. After the Finsen bath a tepid shower-bath was always given, and the out-patients could then go back to their work. The first baths were followed by an erythema of varying strength, darkening in a short time to a brown pigmentation, and once this was obtained the patients suffered no further inconvenience. Contra-indications were shown only in certain heart and kidney troubles. When treating lupus vulgaris he always combined with the Finsen bath surgical treatment or electro-coagulation simultaneously, and he did the same also in many cases of tuberculosis of the larynx. He showed the results of this treatment in 379 patients treated for lupus vulgaris over the years 1913 to 1921. Of this number 304 were pronounced cured; 165 of the cured cases had been under observation subsequent to cure for more than twelve months. There had been recurrences in 25 of the 304 cases, and 21 of these had been cured again, 9 of them having kept well for more than twelve months. In tuberculosis of the larynx—in which category he did not include ordinary laryngitis, but only the infiltrative or ulcerative affection of the larynx which occurred among patients with tuberculosis of the lungs—he gave particulars relating to 100 patients. In 53 of these cases the affection had been

cured in the larynx, 10 were still under treatment, and 37 had "lapsed," in which last division Dr. Strandberg apparently included all who had been lost sight of, all whose condition had been aggravated or had remained unchanged, and all who had died. In the 53 cases cured light baths alone had been used in 34, and light baths together with surgical treatment in 19. The period of observation of 18 of these cases had extended over twelve months. In almost all the cases treated the patients were hoarse and many were completely aphonic before treatment, yet 78 of them regained a full and clear voice; 37 had had difficulty in swallowing, and 32 were freed entirely of this trouble. The number of treatments with the light bath in each case averaged about 86. He claimed that 53 per cent. of cures of tuberculosis of the larynx was a larger proportion than that obtained so far by any other method. Moreover, the affections of the larynx which he had treated were in a very advanced stage, and no doubt if they had been taken earlier the recovery rate would have been still higher. About three-quarters of the patients were out-patients, many from very poor homes, so that the treatment was not in these cases supported by conditions of comfort and good nutrition, and the result was all the more remarkable on that account. Sir StClair Thomson, in proposing a vote of thanks to the lecturer, said that the evidence given by Dr. Strandberg showed that this treatment of laryngological tuberculosis was well worth a trial. He himself had in the press at the moment his own results with first sanatorium and afterwards local treatment, spread over a period of ten years. His results showed lasting arrest—he would not speak of cure—in 25 per cent. of cases. Dr. Strandberg's method, which did not exclude these other resources, gave, by the statistics brought forward, more than 50 per cent. of successes, and was evidently full of promise.

OLD ITALIAN PHARMACY JARS.

PROFESSOR ARTURO CASTIGLIONI of Trieste has recently published an article[1] emphasizing the importance of ceramic art in the history of medicine. It is illustrated by pictures of beautiful specimens from his own collection of the Italian pharmacy jars of the fifteenth century. Italian pharmacies, although in existence in convents and royal courts from the early Middle Ages, did not assume the character of public institutions until the middle of the thirteenth century. The apothecaries then formed corporations which were almost always associated with those of the medical profession, and the apothecary's shop then first became and remained for several centuries a centre of intellectual culture. The apothecary, besides being a dispenser of drugs, also used to sell books and works of art, and in addition was often an astrologist or alchemist. Throughout the fifteenth century the apothecary's shop formed the chief sphere of the physician's activity. Not only did it serve for the reception of patients and the examination of their urine, as is seen in many contemporary pictures, but also as a resort for scientific and professional discussion. It was the birthplace of experimental chemistry. Moreover, it was in the Italian pharmacies of the fifteenth century that ceramic art reached its highest development and found its most beautiful expression, especially in the larger hospitals, such as that of S. Maria della Scala at Florence and that at Siena, where the pharmacy jars and the shelves on which they rested were the work of the most accomplished contemporary artists. Towards the end of the fifteenth century, when the whole of Italy was pervaded by the spirit of the Renaissance, not only did Italian medicine become freed from Arabian influence, but ceramic art, as exemplified in the pharmacy jars, shook off the old traditions and showed the influence of the new spirit. In the sixteenth century the great increase in the number of drugs led to a corresponding increase in the number of pharmacy jars required, with an inevitable deterioration in their quality. During the seventeenth and eighteenth centuries they were generally smaller in size and more sober as regards decoration; only large and rich pharmacies could afford jars of the size and magnificence of those produced by the Ligurian workshops, which served rather for decorative purposes than for the preservation of drugs.

[1] *Bollettino del museo internazionale delle ceramiche in Faenza.* Fasc. iii-iv, 1922. Faenza: F. Lega. 1922. (Pp. 15; 13 plates.)

DANGERS TO HEALTH IN PHOTO-ENGRAVING.

IN March, 1922, the Italian Federation of Photo-Engravers published a report on health conditions among its members in Rome, calling attention to the fact that several had died within a comparatively short period. It was suggested that the poisonous substances with which photo-engravers work might be a cause of disease, and that unhygienic conditions of work might lower the power of resistance. The federation called for investigation of conditions in photo-engraving shops, and of the effects of the processes used on health. The Industrial Hygiene Service of the International Labour Office took up the question, and obtained information from Great Britain, Germany, Italy, the Netherlands, and Switzerland; the data collected by this investigation do not altogether bear out facts hitherto alleged.[1] An essential feature of one common process of photo-engraving is the placing of a metal plate, usually of zinc, to which the image to be reproduced has previously been transferred by photographic methods, in a bath of nitric acid. The image itself is protected by a resistant, such as powdered bitumen, colophony, or "dragon's blood," and the exposed portions of the plate are etched out by the action of the acid. The details of the process vary considerably in different countries, more particularly with regard to the construction of the etching bath and the strength of the acid employed; some etching baths are covered in and provided with a fume shaft, others are open and of a more primitive type. The conditions of work vary also in different countries. Dr. Legge reports that in Great Britain photo-engraving is generally conducted in the upper rooms of the building, often on the top floor, as a good light is needed; good natural ventilation is also thus secured. In Rome it was found that photo-engraving was carried on on the second, first, or ground floor, and in one case even in the basement, but the etching baths were generally in the open air or in an open shed. The reports from some countries give the impression that equipment and hygienic conditions have not kept pace with trade development, and that the necessity for ample ventilation has not always been recognized. The chief danger to health in photo-engraving arises from the escape of fumes from the acid etching bath. The conditions under which these fumes appear were investigated in the chemical laboratories of the Netherlands Labour Inspection Department, and led to the following conclusions. Solutions of nitric acid, from 10 to 25 per cent. absolute strength, when brought into contact with zinc give off a large quantity of nitric oxide vapours which, on mixing with the air, become nitric dioxide, the notorious brown fumes. When inhaled they penetrate into the pulmonary alveoli and combine with vapour exhaled to form nitric or nitrous acid. If this process is intense serious affections of the pulmonary alveoli may be set up, with the typical character of acute poisoning by nitrous fumes. The danger from these fumes is increased when the etching is carried out in an open bath and when the nitric acid is used in higher strength than 15 per cent. Dr. Legge reports that in this

[1] *The International Labour Review*, vol. viii, No. 1, 1923.

country symptoms of respiratory irritation seem to occur only with the open rocking bath; since the introduction of closed baths and more modern methods conditions in the photo-engraving industry in Great Britain have improved materially, and few complaints are now received. It has proved difficult to obtain precise information on mortality and morbidity among photo-engravers, as separate statistics are rarely kept for this class of workers. In Great Britain the secretary of the Amalgamated Society of Lithographic Artists, Designers, and Engravers says that no severe illness directly attributable to acid fumes has come to his knowledge. He adds, however, that "generally speaking, our experience is that all the members of this society are particularly liable to complaints of the respiratory organs, and probably the line-etcher would be more susceptible than workers in other branches." The report from the Netherlands states that complaints of the effects of nitrous fumes have been very rare in recent years. Professor Loriga reports that the investigation conducted in Rome does not provide grounds for inferring that there is any specific liability to disease among photo-engravers. The chief means that can be taken to protect photo-engravers from the dangers of their trade are adequate ventilation in the workshop, cleanliness, good lighting, and closed-in acid baths with ventilating apparatus to carry fumes off to the outer air. Workers are frequently ignorant of the dangerous nature of nitrous fumes and of the methods of rendering harmless acid if spilled; in the Netherlands printed pamphlets on nitrous fumes have been distributed amongst the engravers.

RED DISCOLORATION OF SALTED FISH.

ARTICLES of food appear peculiarly liable to chromatic affections, the causes of several of which have been investigated by the Food Investigation Board of the Department of Scientific and Industrial Research. A condition known as "pink" or "pink eye," to which dried salted fish is liable, has just been investigated by Dr. P. C. Cloake on behalf of the Fish Preservation Committee of the Board.[1] Dr. Cloake gives a history of previous work on the subject; from this it would appear that the condition was investigated for the first time in 1878 by W. G. Farlow for the United States Commission of Fish and Fisheries, and in later years by French, British, and Canadian workers. Their views, however, regarding its causes and hygienic significance have been most divergent. At one time outbreaks of food poisoning in France, for example, were erroneously attributed to consumption of "red cod," and the sale of salted cod with red discoloration was at one time prohibited in consequence. Dr. Cloake's investigations clear up much that was formerly obscure. He describes the process by which cod is salted and dried for the market, and the conditions under which the "pink" growth takes place on the cured fish. He attributes the discoloration to the presence of a "red coccus," occurring in coccal or sarcinal form, and to another unidentified organism to which the name "organism X" is given for convenience; it breaks up in diluted salt solutions into an amorphous slime. An alga also grows in great abundance on the surface of dried and salted fish both on the "pink" and on uncoloured areas, but has nothing to do with the coloration. The two organisms associated with the red discoloration are conclusively proved by Dr. Cloake to be derived from the use in the process of curing of salt already contaminated by them. Contaminated salt is found in the salt-encrusted walls of the curers' stores and on the surfaces of the tables used for curing; it is only in high salt concentrations that the organisms grow. The prevention of "pink" can be effected, therefore, by sterilizing the salt, exposure to 248° F. for thirty minutes being necessary for this purpose, and cleansing the stores and utensils. The "pink"-producing growths can also be inhibited by adding 5 per cent. of sodium bisulphite to the salt, but for hygienic reasons this is not recommended. Another method is to dry the fish to a greater extent that at present, as "pink" organisms will not grow on highly dried fish. The capacity for reabsorbing sufficient water to make the salted cod palatable, however, is lost when the drying has been excessive; and an account of experiments by Dr. Moran and Mr. Piqué are appended to Dr. Cloake's report to show this effect of overdrying. One gathers from the report that the "pink" growths in themselves are not necessarily injurious to health, but the conditions of warmth and moisture under which they appear are favourable to the growth of putrescent organisms, which are liable to render the discoloured fish unfit for food. The relation, however, of the growth of "pink" to putrefaction has not yet been sufficiently investigated.

[1] Special Report, No. 18, of Food Investigation Board. H.M. Stationery Office. 1923. (8vo, pp. 22; 3 figures, 1 chart. 1s. net.)

SICKLE-CELL ANAEMIA.

THE striking but appropriate title of sickle-cell anaemia has been employed so far on five occasions only in medical literature, commencing with 1910; the first four records were of single cases, but Dr. J. G. Huck of the Biological Division of the Medical Clinic, Johns Hopkins University and Hospital, has recently investigated twenty cases and has written[1] a valuable and generously illustrated account of the new disease, which is evidently not very rare in negroes, though so far it has not been detected in any other race. It is defined as a hereditary disease, transmitted by and occurring in males and females with equal frequency, in which the red blood corpuscles acquire a characteristic sickle or crescent shape *in vitro*. Examination of blood directly after withdrawal shows only a few sickle-shaped cells, but after six to twenty-four hours from 25 to 100 per cent. of the red cells, according to the severity of the disease, have taken on bizarre forms. The resistance of the red cells to isotonic salt solutions is slightly below the normal, and the bilirubin content of the serum is high; the sickling, however, is an inherent property of the red cells, the patient's blood serum being without effect on normal erythrocytes. The sickle-cell condition is inherited according to the Mendelian law for the inheritance of a single factor, and is dominant over the normal condition. Blood cultures are negative, and attempts to transmit the disease to animals have failed. The Wassermann reaction of the blood and cerebro-spinal fluid was also negative, a point of some importance as it was first imagined that the disease might be syphilitic or tuberculous. Symptoms may be absent, mild, or severe, and the patients are prone to relapses for periods of one to two weeks. Weakness, inability to work, a low grade of fever, and the usual symptoms of anaemia may be present. Slight injury is enough to provoke round punched-out ulcers on the legs; they are stated to be characteristic and to resemble those due to syphilis. The sclerotics are greenish-yellow and the urine contains urobilin. The red blood count varies from four to one and a half millions, and the haemoglobin from 63 to 30 per cent.; moderate anisocytosis, polychromatophilia, slight leucocytosis, nucleated reds, especially normoblasts, and myelocytes in small numbers are described. The prognosis in the symptomless and mild cases is excellent, but in severe forms decidedly unfavourable, as the patients are prone to intercurrent infections, especially pneumonia and tonsillitis, and seldom live beyond the age of 30. It should, however, be noted that in very rare instances—so far, indeed, five instances only have been

[1] *Bull. Johns Hopkins Hosp.*, Baltimore, 1923, xxxiv, 335-344.

observed—elliptical or elongated red blood cells occur in otherwise normal people, in the white as well as in the black races (Huck and Bigalow[2]). This special form of poikilocytosis is inherent in the cells and cannot be transmitted by intravenous injections of blood. It is regarded as in no way related to sickle-cell anaemia, for the cells are abnormal in shape in fresh blood and no change occurs on standing as happens in sickle-cell anaemia; the condition is compatible with lifelong good health.

CATTLE PLAGUE AND CONTAGIOUS ABORTION.

SEVERAL interesting records of research work reach us from time to time from India, and we have before us two studies by the Veterinary Department of the Department of Agriculture in India—one on rinderpest by W. A. Pool and T. M. Doyle of the Imperial Bacteriological Laboratory, Muktesar, and the other on the etiology of equine contagious abortion by the latter observer. The results of the study on rinderpest go to show that the immunity conferred by preventive inoculations of anti-rinderpest serum alone, even when double, treble, or more doses are given, has been overestimated and at times grossly exaggerated. It is, in fact, of comparatively short duration; and the general conclusions drawn by Pool and Doyle from their experiments are that a single dose of the serum confers a passive immunity for nine days only, and that increased doses prolong the immunity but not in proportion to the increase. This passive immunity is an artificial condition by which the severity of an attack of rinderpest is lessened, but which does not prevent invasion by the virus of rinderpest. In order, therefore, to stamp out the disease in herds the veterinary officers in India advocate inoculation with anti-rinderpest serum simultaneously with a dose of the active virus. The effect of this "serum simultaneous method" of inoculation, as it is called, is to confer active immunity for long periods. The mortality in this method should not exceed 1 per cent. Inoculations with serum alone are insufficient to prevent infection, and the immunity conferred by them rapidly disappears. In his study on the etiology of equine contagious abortion, a disease which has attracted a great deal of attention both in Europe and America during the last ten years, Doyle points out that it is probably widely spread in parts of India, notably in Northern India. He undertook a series of investigations to determine the etiology of the disease, and to discover whether the causal organism was the same in India as in Europe and America. His experiments showed that the causal agent is the *Bacillus abortivo-equinus* in the case of outbreaks of specific abortion in India both amongst pony and donkey mares, and is identical in all particulars with that described by European and American observers. It was capable of producing abortion by intravenous, alimentary, and intravaginal infection. These and other research studies are printed and published for the Imperial Department of Agriculture in India and the Agricultural Research Institute, Pasa, and may be obtained from Messrs. Thacker, Spink, and Co., Calcutta, or Messrs. Thacker and Co., London, for a small sum.

THE APOTHECARIES' SOCIETY OF LONDON.

THE Livery Dinner of the Society of Apothecaries of London was held at Apothecaries' Hall on Tuesday, December 4th, under the chairmanship of the Master, Dr. Thomas Wakefield, who was supported by the Senior and Junior Wardens, Dr. A. D. Brenchley and Dr. T. Vincent Dickinson, the Presidents of the Royal Colleges of Physicians and Surgeons, the Directors-General of the Medical Departments of the Navy and Army, the Secretary of the Medical Research Council (Sir Walter Fletcher), and many other leading members of the medical profession. The ancient hall of the Society, situated in Water Lane, provides a very attractive setting for this annual dinner. The original hall, acquired in 1633, was destroyed by the Great Fire of London; it was rebuilt some ten years later and enlarged in 1786. Until 1902 the Society maintained the Physic Garden at Chelsea, and the wholesale and retail trade in drugs which had been carried on as one of the functions of the Society was discontinued last year. But the work of a City Company and of a licensing corporation for the medical profession is continued, and the hospitality of the livery dinner comes as a graceful reminder of these twofold duties. After the loyal toast had been honoured the Master proposed "The Navy, Army, and Air Forces," and this was responded to by Vice-Admiral J. Chambers, Medical Director-General, R.N., and Lieut.-General Sir William Leishman, D.G.A.M.S. The toast of the Royal Colleges and the Universities was submitted by the Senior Warden and responded to by Sir John Bland-Sutton, P.R.C.S., and Sir Sydney Russell-Wells, who represented the University of London in the late Parliament. The toast of the Society of Apothecaries of London was proposed by Dr. T. J. Duffield (medical statistical officer of the League of Nations) and replied to by Dr. F. Gordon Brown (Senior Past Master of the Society). The health of the guests was proposed by the Junior Warden and replied to by Brigadier-General B. R. Kirwan (Director of Artillery, War Office). The speeches, though numerous, were commendably short.

EPSOM COLLEGE.

EPSOM COLLEGE, as all our readers should know, is a public school having special associations with the medical profession, for it was founded by a large-hearted medical man, the late John Propert, and many practitioners have received their early education there. The foundation stone was laid in 1853, and the school was opened in 1855 by the Prince Consort. Though founded under the name of the Royal Medical Benevolent College, the school is not by any means one for the sons of medical men only; but it provides, free of charge, a high-class education, together with clothing, maintenance, and pocket-money, for fifty necessitous sons of medical men. Another important branch of the work of the Royal Medical Foundation of Epsom College is the giving of pensions of £30 a year to fifty aged and impecunious medical men or their widows. Since 1903 the words "medical" and "benevolent" have been removed from the title of the school, because it was found that they hindered its development along the lines projected by the founders, by suggesting that the institution was a charity school for the sons of doctors. Nevertheless, Epsom College is indeed a medical foundation by reason of the circumstances outlined above, and both the school and its Royal Medical Foundation have a special claim to the interest and support of the profession. We therefore are glad to have this opportunity of calling the attention of our readers to the appeal contained in the letter by Sir Henry Morris, the honorary treasurer, which appears this week in our correspondence columns.

MR. JOSEPH BARCROFT, F.R.S., reader in physiology in the University of Cambridge, has been appointed Fullerian professor of physiology at the Royal Institution, in succession to Sir Arthur Keith.

THE office of Milroy lecturer for 1925 is vacant, and, as will be seen from our advertisement pages, applications should be sent to the Registrar of the Royal College of Physicians of London, Pall Mall East, S.W.1, on or before January 1st next. The course must comprise not less than three nor more than six lectures, to be given on Tuesdays and Thursdays in February and March, 1925.

[2] Huck, J. G., and Bigalow, R. M.: *Bull. Johns Hopkins Hosp.*, Baltimore, 1923, xxxiv, 390.

NINETY-SECOND ANNUAL MEETING
of the
British Medical Association,
BRADFORD, 1924.

THE ninety-second Annual Meeting of the British Medical Association will be held at Bradford next summer, under the presidency of Mr. J. Basil Hall, M.Ch.Cantab., consulting surgeon to the Royal Infirmary, Bradford, who will deliver his address to the Association on the evening of Tuesday, July 22nd. The sectional meetings for scientific and clinical work will be held, as usual, on the three following days, the mornings being given up to discussions and the reading of papers, and the afternoons to clinical and laboratory demonstrations. The Annual Representative Meeting will begin on the previous Friday, July 18th. The provisional programme for the work of the twelve scientific sections is being drawn up by an Arrangements Committee, consisting partly of Bradford representatives and partly of members elected by the Council. The names of the presidents of sections were given in a Current Note published in last week's SUPPLEMENT, and the full list of officers, together with other details of the arrangements for the Annual Meeting, will appear in subsequent issues. On the last day of the meeting —Saturday, July 26th—there will be excursions to places of interest in the neighbourhood. We publish below the first of a series of descriptive and historical articles on Bradford.

BRADFORD: AN HISTORICAL SKETCH.

BY
J. HAMBLEY ROWE, M.B., C.M.,
FELLOW OF THE SOCIETY OF GENEALOGISTS.

"WORSTEDOPOLIS," as Bradford has been named from its chief industry, is the ninth town in England in regard to its population. Though its written history stretches back to the Domesday Book, yet its marked industrial importance may be regarded as chiefly of modern if not of mushroom growth. In the census of 1801 the population of its present area was recorded at about 24,000; to-day it has close on 300,000 people, a notable expansion and paralleled by but few towns in the British Isles.

A small market town for many centuries, Bradford in 1847 received a charter of incorporation and became a borough. In 1889 it was raised to the status of a county borough, and in 1897 it was created a city. Its chief magistrate became one of the Lord Mayors of England in 1907, and on December 6th, 1919, Dr. Perowne was appointed first bishop of the new diocese of Bradford.

BRADFORD CHURCH IN THE CIVIL WAR, 1643.
Showing packs of wool on tower protecting it from bullets and cannon balls.

Bradford lies in a tributary valley of Airedale and has to the north and west quite extensive health-giving heather-clad moorlands, attaining in one instance to the height of 1,400 feet. The altitudinal range of the city itself varies from 300 to 1,100 feet.

It is on the moorlands that we find numerous evidences of Neolithic man in flint implements, barrows, stone circles, and notably cup and ring marks. Indeed, two examples of urn burials have been discovered within the city boundary. In the upper reaches of the Aire and the adjoining Wharfe many important remains of early man have been found, and just over the watersheds of these rivers is the famous Victoria Cave at Settle, which yielded to Professor Boyd Dawkins a wealth of prehistoric remains.

Of the Brigantes who inhabited this part of England few traces are to be found. Perhaps the most interesting is the method of scoring sheep in corrupt Celtic enumeration which persisted in the Yorkshire dales to within the last few years. Certain dialect words explainable only by Celtic roots occur, such as to *posset* (the bringing up of curdled milk by an infant), *sad* (that is, solid, firm—as in sad cake), *brat* (an apron), *boggart* (a bogy, hobgoblin). A few place names of Celtic origin survive, such as Pennyghent, Pinhow, Pennythorn, and Carn Fell, the names of hills.

In respect to folk-lore we still meet with the couvade, which has been explained as a survival of a phase of matriarchy and therefore of pre-Celtic and non-Aryan days. In Nidderdale the souls of unbaptized infants pass into or are embodied in that strange bird, the night-jar. Infants that are bad are often screaming and wakeful when their parents want to sleep, and the selection of the night-jar as a receptacle appears extremely appropriate.

The Roman occupation coincides pretty nearly with the last phase of Celtdom in Yorkshire. Though no Roman road has yet been proved to have passed through Bradford, near to the south-west corner of the city well marked traces of the Roman road from Manchester to Boroughbridge (Isurium) via Ilkley are yet to be seen. At Ilkley there was a Roman camp of some pretensions which was partly excavated in 1921 and 1922. Numerous remains of buildings, ware, coins, and altars have been found. Another Roman road from Ribchester to Tadcaster and York also comes through Ilkley, and a fort on this route has been excavated at Elslack near Skipton.

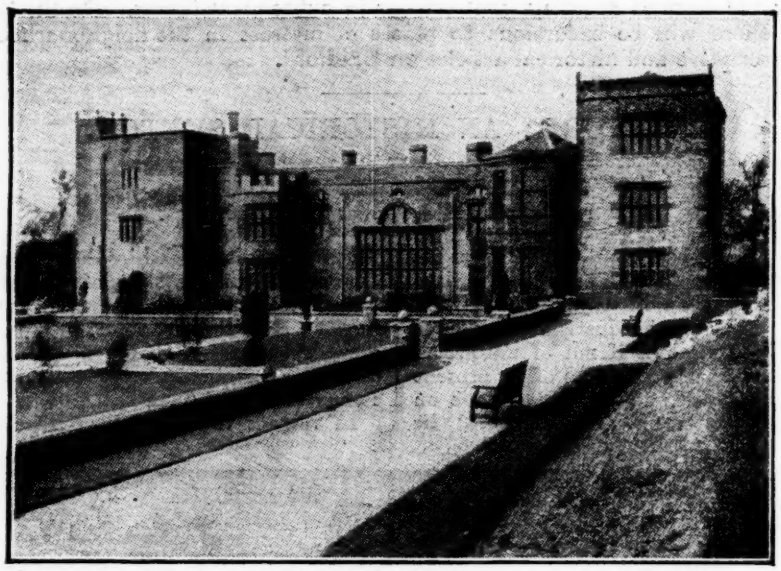
That the Saxons colonized the West Riding very thoroughly is indicated by the great majority of the place names, amongst which those ending in *ton* and *ley* predominate, whilst *ford*, *shaw*, and *worth* are very frequent terminations. There are crosses of this age in Ilkley

Churchyard in fair preservation and others somewhat similar are to be seen at Kildwick Church. There is also a Runic inscription at Bingley concerning one Eadberht Cuning.

The incursion of the Scandian and Danish races and their settlement in Bradforddale and Airedale is also indicated by the not infrequent terminations in place names of *thwaite* and *gill* (Norse) and *by* and *thorpe* (Danish). The dialect of the district also affords evidence of the influence of these peoples. A child is said to *lake* when it plays, or to *skrike* instead of shriek or screech. To *kittle* means to tickle or to *lig* down means to lie down, *neive* is a fist, and a bridge is yet a *brigg*, and to *skift* is to shift. This shows that the Norse influence was sufficiently strong to resist the palatalization of the guttural.

In the Domesday Survey of 1086 we first find the town mentioned as the manor of Bradford, together with six unnamed berewicks attached to it which were in the possession of Gamel, *Tempus Regis Edwardi*.

The description of Bradford, like many another Yorkshire Domesday manor, finishes with the words, *It is waste*. Four years after the battle of Hastings the Conqueror came north to crush a rebellion and swore by God's splendour, his usual oath, that he would not leave a soul alive, and his words were evidently effectual, for Simeon of Durham says that the inhabitants in the North who escaped William's vengeful wrath "ate rats, mice and other vermin to sustain life," so devastated was the country.



BOLLING HALL FROM THE SOUTH.
Headquarters of the Earl of Newcastle, during the siege of Bradford, 1643.

Bradford, with many another manor, was given to Ilbert de Lacy, one of the Conqueror's Norman followers, and so vast were his possessions that he could journey from Pontefract to Blackburn over his own land. Eventually John of Gaunt, "time-honoured Lancaster," succeeded to this estate, and a singular tenure of land was granted by him to John Northrop of Manningham. On the many occasions that the Duke of Lancaster passed through Bradford, Northrop "was on the blowing of a horn (*Unum flatum cornu*) to wait upon the Duke with a lance and hunting dog for forty days and to have for yeoman's board one penny for himself and a halfpenny for the dog." A descendant of Northrop granted land to one Rushforth on condition that he held the lance whilst Northrop's man blew the horn. The horn is still preserved and is now in the possession of the Corporation.

In mediaeval days we do not get many items of outstanding interest in the history of Bradford. But plenty of material of great local interest bearing on the social life of the people in successive centuries is extant in the very fine series of court rolls for the manor of Bradford preserved in the Public Record Office and in the muniment room of Viscount Mountgarret. The former set was transcribed at the expense of the late J. Norton Dickons, and presented to the Free Library, where they may be consulted by anyone interested in the development of English social life and laws from 1330 to 1539.

In 1378-9 Richard II levied a poll-tax, and the membranes containing the names of persons taxed and the amounts paid exist in the Public Record Office. The returns for the West Riding of York have been printed, and therein we find that the total of the tax paid by the then inhabitants of the present area of the city came to £6 16s. 4d.—that is, a little more than a sixth of what the whole wapentake paid. Out of a total of about thirty distinct surnames given in the list as of the manor of Bradford at least seventeen are to be met with commonly to-day in the town.

Leland, the diligent travelling topographer to King Henry VIII, visited the town, and his quaint remarks may well be recorded here:

"Bradeforde a praty quik market toune, dimidio aut eo amplius minus Wachefelda (Wakefield). It hath one paroche chirche and a chapel of Saint Sitha. It standith much by clothing, and is distant vi miles from Halifax and 4 from Christestal Abbay" (Kirkstall).

The chapel of St. Sitha was dedicated to St. Zita, the serving maid of Lucca esteemed for her zeal in attendance at church and for her care of the poor. She was often invoked by the pious to find lost keys—a domestic duty which serving maids of to-day have to do for mistresses, aye, and even for masters of weak memory. The cult of St. Sitha, which was much more widespread than is usually believed, "was no doubt due to the influence of the numerous companies of Italian merchants whose business as the Pope's agents and dealers in wool took them into all parts of the country."

There was much traffic with the Continent in English wool in the twelfth, thirteenth, and fourteenth centuries, as may be judged from the fact that at the end of the thirteenth century about 2,380 sacks of English wool, worth some £25,000 to £30,000, were annually sent to Florence.

The Civil War brought much trouble to the inhabitants of Bradford. In August, 1642, Charles I set up his standard at Nottingham, and one of his first acts was to send troops into the larger towns of the West Riding, wherein the Puritan movement, owing to zealous and able preachers, had taken strong root. The first brush in the North of England between the opposing factions took place at Bradford early in December, 1642, and on this occasion the Royalist troops were repulsed. On Sunday the 18th of the same month Sir William Savile with a large force attacked the town, but was beaten off without doing much damage. The local men were an undisciplined body, badly armed, for they could only muster "forty muskets and calivers and about thirty fowling, birding, and smaller pieces," the others being armed with scythes, hay-forks, clubs, and such like weapons.

Some six months afterwards the second siege of Bradford took place. The Earl of Newcastle, with an army of ten or twelve thousand men, marched on Bradford and was met on Adwalton moor, about four or five miles to the south-east of the town, by Fairfax with three thousand men. A sharp encounter ensued, known as the battle of Atherton, and the Puritans, though within an ace of victory, were beaten.

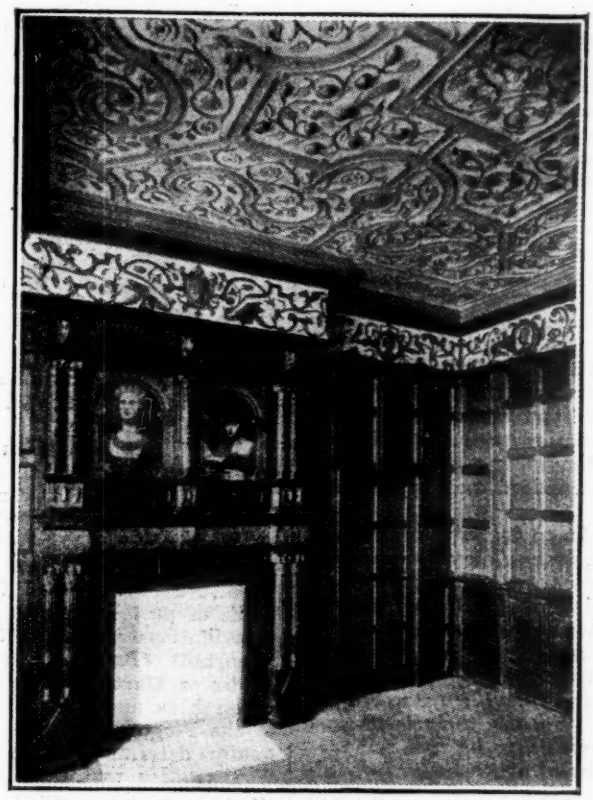
Newcastle then moved on to Bradford and gave orders that next day no quarter was to be shown to the inhabitants. But as he lay that night at Bolling Hall, the ancient seat of the Tempests, an apparition in female guise appeared, saying in plaintive tones, "Pity poor Bradford," "Pity poor Bradford." The stern man relented and the lives of the people were spared, but all their valuables and live stock were taken. The setback Bradford received during these wars was very great and a retarding effect on its prosperity and development lasted for a hundred years.

Bradford had for many centuries been a marketing centre whereto the weavers of the surrounding country could bring

their cloth for sale. Up to within the last 150 years the weaving of cloth was carried on in cottages and in some cases three-storied houses all over the countryside. The farmers, the small tradesmen, and the labourers of the surrounding districts had combing, spinning, and weaving appliances of comparatively simple design in their houses, and with the help of their wives and children made cloth week in and week out for many generations.

To Bradford the goods were brought and the "pieces," as the bales of cloth were called, were exposed for sale and found ready purchasers in the open market, until in 1773 the old Piece Hall was erected. Towards the end of the eighteenth century men began to employ others to work for them as weavers, thus allowing the latter to devote all their time to the actual work of weaving, whilst the employer took upon himself the task of finding the material to be woven and also the buyer for the finished goods. Specialization took place in other departments and so combing, dyeing, spinning, and weaving ceased to be a one man's job and passed into the hands of several.

Gradually further specialization and development took place. Looms were set up in comparatively large buildings and at first in many cases the machinery was worked by water wheels, hence the buildings were called mills. The introduction of steam-driven machinery met with considerable opposition from the mass of weavers. It was held that large numbers of them would be thrown out of employment by these labour-saving devices. Their mistaken opinion was quite reasonable, for no similar revolution had occurred in industry before, and consequently there was no historical experience from which to draw a correct inference. One Buckley in 1793 formed the design of erecting a factory in Bradford to be wrought by a steam engine. He was deterred by the threats of his neighbours, some of whom years afterwards erected mills of their own. In 1798 the first mill worked by steam was built, its propelling force being an engine of 15 horse-power. Shortly after more engine-worked mills were built, until in 1819 the aggregate of horse-power amounted to 492, all built in the face of severe opposition.



Bolling Hall: Bedroom in which the ghost appeared to the Earl of Newcastle.

At Heckmondwike, in the neighbouring Spen Valley, in April, 1812, the Luddites (a mob calling themselves the army of General Lud) attacked Rawfold's Mill and caused much damage. Several of the rioters were tried at York Assizes and received punishment. Charlotte Brontë, in her novel *Shirley*, incorporated many of the incidents in her account of the riot at Hollows Mill. A year or two ago these incidents were cleverly filmed at the exact place of their occurrence. Since those troublous days Bradford has expanded by leaps and bounds in spite of strikes, breaking of banks, imposition of tariffs, and other hindrances to trade development.

Several causes have contributed to the rapid expansion of the town: (1) The proximity of coal and iron deposits and their development by the Low Moor and Bowling Companies; (2) the erection in the early decades of the last century of many weaving and spinning mills equipped with machinery which drew country folk in great numbers to the town—a people, too, who could and would work; (3) the presence of suitable building stone in an inexhaustible quantity in the neighbourhood; and (4) the fact that the air of Bradford possesses just that degree of humidity which enables the spinning of wool to be perfectly effected. It is said that in no other part of England or of the world can wool be spun so easily and efficiently as in Bradford. This is probably due to the fact that the town lies in the hollow of a tributary valley of Airedale, and that the loam lining that hollow is in most places not much more than 9 inches deep, while below it is an extensive deposit of glacier-borne boulder clay which is more or less impervious.

YARROW PROFESSORSHIPS OF THE ROYAL SOCIETY.

PRESIDENT'S ANNIVERSARY ADDRESS.

AT the anniversary meeting of the Royal Society on November 30th, the President, Sir CHARLES SHERRINGTON, G.B.E., in his address reviewed the Society's policy in respect of the administration of the various funds at its disposal for the advancement of research. He prefaced his remarks on this subject by quoting Sir Alfred Yarrow's wish that his munificent gift of £100,000 should be used "to aid scientific workers by adequate payment and by the supply of apparatus or other facilities rather than to erect costly buildings."

The suggestion was specially germane to a line of policy which began to shape itself in the Society last year and had since been further developed. The Foulerton, Messel, Yarrow, and Mond funds, taken in conjunction and following the wishes of their individual donors, lent themselves very well to a systematization of the Society's provision for advancing research. In view of the fact that the Society already possessed funds derived from various sources which enabled it to render valuable aid to workers of promise in the early period of their career, it was decided after careful consideration that the form of help now specially needed and specially likely to be effective in advancing discovery was the creation of a greater opportunity for fully experienced investigators of already proved first-rate capacity in research. It was felt that increased opportunity afforded to such investigators was likely, with a prospect of comparative certainty, to attain its recompense in the achievements such investigators would accomplish. The Society, by virtue of its own organization, had the opportunity of knowing the powers and scientific circumstances of representatives of this class of investigator. Over an ample field, and at many points in that field, it lived in contact with their endeavours, was conversant with work they had already done and often with work they were in fact prosecuting and could prosecute more fully had they increased opportunity for so doing. In institutions, university or other, such investigators for the most part occupied positions to which opportunity for research was an adjunct to calls of other nature upon their strength and time. Such seats of learning showed themselves in instance after instance desirous that their personnel should prosecute research, but also, in instance after instance, were embarrassed to secure to them adequate time for so doing. Therefore it was felt that the Society, by securing, in co-operation with this or that particular institution, ample freedom of time for a distinguished member of the staff to prosecute research undividedly, would be helping the

improvement of natural knowledge by discovery, which was its main function. University and other scientific institutions had been wont, indeed in many instances had been compelled by force of circumstances, to regard teaching as the primary occupation of professoriate and staff: the Society had in its new policy deliberately inverted that order of precedence. By this inversion it desired of set purpose to recognize research as a definite profession and to advance, and to maintain, the principle that the labourer is worthy of his hire no less when engaged in research than when engaged in class instruction.

The President referred to the appointment of Professor E. H. Starling just a year ago to be Foulerton Professor, and announced that two Yarrow professorships had been awarded—one to Professor Alfred Fowler, F.R.S. (Royal College of Science, South Kensington), the other to Mr. G. I. Taylor, F.R.S. (Cambridge). Professor Fowler was well known the world over as a spectroscopist whose researches had been of the greatest value to astronomy, to physics, and to chemistry. Professor Taylor had started his scientific life as an applied mathematician and had proceeded from abstract hydrodynamics to practical problems of geophysics and meteorology. The record of both gave every justification for hoping that in the unfettered freedom of the Yarrow professorships they would find opportunity for still ampler fulfilment of brilliant work. It was fortunate that both would continue their researches in the laboratories from which their outstanding work had issued in the past, and of whose tradition indeed their reputations already formed a part.

The Council had not thought fit to insist that the professors should either teach or not teach; the sole condition laid down was that to research their main energies should be devoted. Sprat, the first historian of the Royal Society, records that to Bacon's *New Atlantis* much of the inspiration for the inception of the Society and for its early life was due. Bacon had dreamed of "a college for the obtaining of knowledge of the causes of things" and enumerated its grounds and apartments, its Fellows and their functions. "Of its Fellows," he said, "twelve there be that sail into foreign countries to bring patterns of experiments from all other parts. These we call merchants of light. Then three we have that collect the experiments which are in all books. These we call depredators. . . . And," he continued, "on our foundation we have three Fellows who all their days try new experiments such as themselves think good. These we call pioneers." To-day, on the completion of its two hundred and sixty-first year of existence, the Society found itself able to fulfil closely this particular of Bacon's enthusiastic imagining. Three Fellows on its Foundation were to "try all their days new experiments such as themselves think good." They might well be designated in Bacon's word "pioneers."

Munificent as were the gifts the Society had received it hoped that the funds already in hand would prove but the auspicious starting-point for yet others of similar destination, and that either the Royal Society or other bodies might have it in their power to endow the research of all those individuals whose life ought, in the best interests of the community, to be devoted to scientific research as the main purpose of their life-career.

At the previous anniversary, the President continued, he had adverted to the high promise implied in the discovery of insulin; that promise had in the elapsed twelve months proceeded satisfactorily towards further fulfilment. It would seem possible that under treatment by insulin the beta-cells of the pancreatic islets might be able to re-establish permanently their functional powers, and that in certain cases the treatment might produce not only temporary, but lasting relief from the diseased condition. All the more welcome, therefore, was the recognition of their work received by Dr. Banting and Professor Macleod by the award of the Nobel Prize for medicine for 1922. The success of their work was based on intimate co-operation between physiology and biochemistry—if indeed these cognate studies could be considered separate—and the success of their research early in its progress was an instance of the value of team work in the best sense of that term. That aspect of the matter could not be touched without a word of tribute to the act of comradeship on the part of the two Nobel laureates themselves in sharing the prize with their two collaborators, Dr. Best and Professor Collip. The furtherance of a scientific inquiry by organized collaborators on a wider scale, yet tantamount in fact to team work, was exemplified by the rate of advance made for the year in the whole study, practical and theoretical, of insulin and insulin treatment, under the wise direction of the Medical Research Council. The award of the Nobel prize for medicine for 1923 to Professor A. V. Hill, of University College, London, was universally gratifying to physiologists. Professor Hill's investigations had dealt with the thermodynamical processes underlying muscular contraction and underlying also muscular restoration after contraction, enabling contraction to repeat itself. His elucidation of the whole problem, which had long occupied and taxed the powers of many eminent physiologists, was as far-reaching in outlook as it had been masterly in conception and execution.

The President then presented the Society's medals; among them was a Royal Medal presented to Professor C. J. Martin, Director of the Lister Institute. The President said:

"**Professor Martin** is distinguished for contributions both to physiology and to pathology. Investigating snake venoms he differentiated two groups in virtue of their action—one nervous, the other, so to say, humoral. His work on heat regulation in monotremes threw light on the evolution of the thermotaxis of warm-blood animals. More recently his researches have lain in the colloidal chemistry of proteins, and in protein metabolism. A series of experiments carried out by him in collaboration with his colleague, Mr. Robison, on the minimum nitrogen expenditure of man and the biological values of separate kinds of protein-food, stands as one of the most valuable contributions yet made to a subject as difficult as it is important. Besides these personal researches at first hand, Professor Martin has influenced inspiringly the course of research in medicine in this country. He was a member of the Plague Commission which organized the researches finally determining the mode of transmission of that disease. He was chairman of the War Office Committee on antityphoid inoculation. As director of the Lister Institute he has contributed to many investigations, in addition to those actually issued in his name. Thus he has been intimately associated with the inquiry into the influence of accessory food factors of diet in the prevention and remedying of 'deficiency' diseases, such as scurvy and rickets, an inquiry the success of which may be regarded as one of the recent triumphs of preventive medicine. His abilities have been ever at the call of his colleagues, and in the most public-spirited way devoted to the service of the community in general."

ROYAL MEDICAL BENEVOLENT FUND.

AT the last meeting of the Committee forty-three cases were considered and £499 15s. voted to thirty-four applicants. The following is a summary of some of the cases relieved.

L.R.C.S.I., aged 65, who owing to paralysis has been unable to work regularly. One daughter is out of employment, the second one is married, and the youngest has a post at thirty shillings a week and is unable to help her father to any great extent. The Fund made an emergency grant of £3 and voted at this meeting £18 in twelve instalments.

Widow, aged 81, and daughter, aged 55, of L.R.C.S.Edin. who died in 1918. Their only sources of income is the sale of eggs and the mother's old age pension. They live in a bungalow of their own which has been damaged by fire; the damage is estimated at £18 and they were uninsured. A grant of £9 in six instalments was voted (to the mother) and of £10 to the daughter towards the damage through the fire.

Widow, aged 26, of M.B. who died suddenly in May, 1923. He had only been in practice for one year and left his widow penniless. Her baby was not born until July. Voted £20 in two instalments.

Widow, aged 62, of L.R.C.P.I. who died in 1902. She has maintained herself by acting as a companion and up to two years ago had a permanent appointment, but owing to her health breaking down she had to give up. During the last twelve months she has only received £10 from needlework and £20 as temporary companion. Applicant's rent is £25 per annum. Voted £18 in twelve instalments.

Widow, aged 46, of L.R.C.S.Edin. whose last appointment was in South Africa, where he died three weeks after landing. The War Emergency Fund helped considerably whilst the applicant's late husband was searching for an appointment. Applicant has been in hospital with heart trouble. A vote of £5 was made and it was decided to reconsider the case.

Subscriptions may be sent to the Honorary Treasurer, Sir Charters Symonds, K.B.E., C.B., M.S., at 11, Chandos Street, Cavendish Square, London, W.1.

THE "LANCET" CENTENARY DINNER.

IN celebration of the centenary of the *Lancet* a dinner was given to the proprietors and staff of that journal on November 29th. A company of more than four hundred gathered at the Hotel Victoria, Northumberland Avenue, with Sir DONALD MACALISTER, K.C.B., in the chair. Among those present as sponsors for the dinner or their guests were:

S.E. M. le Comte de Saint-Aulaire (French Ambassador), Lord Hewart (Lord Chief Justice), Sir Squire Sprigge (Editor of the *Lancet*), with Lady Sprigge, Viscount Burnham, Sir Louis Newton (Lord Mayor of London), with the Sheriffs, Lord Dawson of Penn, Lord Riddell, Sir Humphry Rolleston (President, Royal College of Physicians of London), Sir John Bland-Sutton (President, Royal College of Surgeons), Vice-Admiral J. Chambers (Medical Director-General, Navy), Lieut.-General Sir William Leishman (Director-General, A.M.S.), Major-General J. B. Smith (President, India Office, Medical Board), Air Commodore D. Munro (Director of Medical Services, Royal Air Force), Sir George Newman (Chief Medical Officer, Ministry of Health and Board of Education), Sir Charles Sherrington (President, Royal Society), Sir W. Hale-White (President, Royal Society of Medicine), Lady Barrett (President, London Association of Medical Women), Mr. H. J. Waring (Vice-Chancellor, University of London), Sir Walter Fletcher (Secretary, Medical Research Council), and Sir Stanley Leathes (First Civil Service Commissioner).

The British Medical Association was represented by Mr. C. P. Childe (President), Dr. R. A. Bolam (Chairman of Council), and Dr. Alfred Cox (Medical Secretary), and the JOURNAL by Sir Dawson Williams (Editor) and Dr. N. G. Horner (Assistant Editor).

In proposing the loyal toast, Sir DONALD MACALISTER remarked that His Majesty had been pleased to accept the Diploma conferring upon him the Honorary Fellowship of the Royal College of Surgeons, but with equal graciousness he had been persuaded not to present that Diploma to the General Medical Council for registration, thereby most considerately relieving that body and its President from a situation that would have been embarrassing.

THE PROFESSION OF MEDICINE.

The Right Hon. LORD HEWART (Lord Chief Justice) proposed the toast of "The Profession of Medicine." He began with a few remarks in jocular vein on the association of medicine and the law. The two professions received unstinted and universal gratitude. With the single exception of the law, there was no profession more devoted to the art of healing than the medical profession; again, with the exception of the law, there was no profession which was wiser or more humane, and he would go one step further (as they said in Parliament) and affirm that, with the single exception of the law, there was no more ancient profession than the medical. Descending to a serious topic, the Lord Chief Justice referred to the recent report of the committee of inquiry into the question of insanity and the criminal law. At present, if a person was to be held not responsible for a crime on the ground of insanity, it must be proved either that by reason of infirmity due to disease of the mind he did not know that what he was doing was wrong, or that he did not know what he was doing at all. That was the view put forward in the answers of the judges to the questions asked them in the M'Naghten case (1843). But he understood that a third alternative was now recommended—namely, that a person might still be held not to be responsible, although he knew what he was doing, and that what he was doing was wrong, if, nevertheless, by reason of disease of mind, he was uncontrollably impelled to do it. It that was indeed to be the law, he would not say that they were launching upon a sea which had no shore, but certainly they were launching upon a sea the shores of which were far more widely separated than the shores between which as lawyers they had hitherto navigated.

The PRESIDENT called upon "Sir Humphry Rolleston, my former pupil, and Sir John Bland-Sutton, my former master," to respond to the toast.

Sir HUMPHRY ROLLESTON reviewed the changes that had taken place during the last century in medicine. Whatever the present condition of the body politic, those who spoke for medicine would be tempted to adopt the attitude of Dr. Pangloss that in this department of human affairs the present was the best of all possible eras. The last hundred years had seen the rise and the results of laboratory research in medicine. It was nearly a hundred years ago that the idea of the modern laboratory originated; he instanced Purkinje's physiological laboratory in Breslau and Liebig's chemical laboratory in Giessen. The leading position of British physiology and neurology must be regarded as the outcome of this method of investigation. The middle third of the nineteenth century was pre-eminently that of structural pathology, while the remaining part of the century saw the rise of etiology after the founding of bacteriology by Pasteur and Koch. Lister's practical application of this new science to surgery was followed by Almroth Wright, whose dictum, "The physician of the future will be an immunizator," represented an ideal not yet finally reached. With the inspiration of etiology, preventive medicine, especially in tropical diseases, had led to an enormous saving of human life. The present century was the era of research into functional disorder, of biochemistry, chemotherapy, and comparative medicine and pathology. He went on to speak of the increasing share which the Government was taking in the prevention and control of disease, also to the increase of team work both in research and clinical practice. What the future might bring forth in the way of State service and State-run hospitals remained to be seen, and though this consummation did not appear to be devoutly wished for ("Hear, hear") it should be considered with an open mind. The early stages of disease still remained a problem for extensive investigation, and perhaps after all, while they were congratulating themselves that they did not live in the reign of the fourth George, they were still only looking out from the borders of the promised land of health.

Sir JOHN BLAND-SUTTON, while hesitating to talk about surgery, said that he would trespass a little on the province of the physician. In all religions of the world there existed the belief that from time to time gods assumed the form of animals and in fleshly garb rendered service of a supernatural kind to man. But it had remained for physiology to teach us the nature of the service which some animals rendered. In our gross bodies there were smaller bodies called ductless glands, and it was the action and interaction of the gods of this glandular pantheon which determined our morality or moroseness, our wit or wantonness, our fame or infamy, and whether we were fat or thin, dwarf or giant. If it happened that one or other of the gods was idle the balance was disturbed, and clever physicians observed the signs and symptoms, noted which gland was deficient, and set to work to restore the balance by injecting an extract of the corresponding gland from perhaps the chimpanzee, the armadillo, or the ass. Sir John Bland-Sutton then turned to say a few words about sugar, a remarkable substance, whether regarded from the point of view of commerce or of science. In the production of cane sugar enormous fortunes had been made and lost, and it had been a source of as much misery to the natives of the West Indies as ivory to the natives of the West Coast of Africa. But human sugar had been a source of misery to hundreds of thousands, also a source of great interest to physiologists and of profit to physicians. To surgeons it had been a source of dismay, for unsuspected sugar in the urine was as big an obstacle to the surgeon as an uncharted rock to the mariner. When the islands of Langerhans were first discovered they were regarded as histological curiosities, but it was now known that they exercised a greater influence on human fortunes than the comet which was reported last month in the constellation of the Ram. Physicians as a rule plumed themselves that although they got their living by attending to the sicknesses and frailties of human beings, they were active in trying to find the cause of disease and destroying the very agent out of which they got some sort of a living. If he were speaking in the House of Commons he would say, "Mr. Speaker, I can assure you that the discovery of insulin has raised the cost of human sugar to the producer." (Laughter.) Taking into account the cost of insulin, the cost of the analyses which had to be made from time to time, and the cost of the fashionable physician himself, he believed that in the millionaire patient the increased cost of production was from £700 to £1,000 a year! Thus the encomiums which physicians passed upon themselves no longer held good. To wipe out the reproach they must set to work to find some synthetic substance—coal-tar, perhaps—

which would furnish a drug as easily obtainable and purchasable as aspirin and which could be used for the advantage of diabetics. Care must be taken that this drug did not get into the hands of a druggist who would corner it, for such a druggist, having amassed a great fortune, might turn philanthropist in later life and devote his millions to the rebuilding of the Royal College of Physicians and to reimbursing physicians themselves for the heroic losses, bravely borne in the true spirit of the profession, which they had sustained through the absence of diabetics from their consulting rooms. (Laughter.)

THE "LANCET" AND ITS FOUNDER.

Sir BERKELEY MOYNIHAN, in proposing the health of the *Lancet*, paid that journal many compliments, but reminded the company that it had not always been as gentlemanly and persuasive as in these latter days. A hundred years ago, when the *Lancet* was founded, the profession was the victim of many abuses, from within and from without its own ranks. The Apothecaries Act was then only eight years old, and there had been no time, inclination, or opportunity for the organization of the profession. The profession in those days suffered from vexatious and intolerable things, from shameless nepotism, from harsh and unjust ordinances of governing bodies, from despotic methods among teachers and examiners which rankled in the minds of the general body of practitioners, but for which there was no redress. The *Lancet* helped to change the picture. It was born in an age when men were restive against authority. The French Revolution and the revolt of the United States had affected the mind of a generation. Thomas Wakley lost no opportunity of attacking privilege and injustice. Looking back upon that stormy figure, they had to acknowledge that his contentions were almost always right. His methods of procedure were perhaps crudely conceived, and carried out with something approaching savage rancour, but he was fighting against interests which were disregardful of the rights of others, and possibly no other procedure would have gained his end. He bestowed now and then a word of praise, but in general his onslaught was as virulent as it was persistent. Wakley's achievements called for admiring gratitude. His robust independence, his faith in great causes, his loathing of injustice, his disdain for that professional eminence which was built only upon favour, appealed to them all. His pungent wit, his merciless invective also attracted them, because, although these powers were harshly used, they were never, he thought, used unfairly. Men such as Wakley were brought into being in all countries of the world, but especially in our own, where the human spirit was quickly roused to active protest when strength was devoid of right, or control was dictated by caprice. Monuments to the benefactors of the past were sometimes carved in stone or cast in bronze, but few memorials were so enduring as the journal which perpetuated the memory and labours of Wakley. From Wakley's day to this the *Lancet* had grown in influence and authority. Its pages steadily reported the progress of medicine, and by its help greater medicine had been inaugurated. The world was a little weary of journals, especially those which, unmindful of responsibility, sought ever for larger circulations and greater power. The first duty of journalism was to educate, to enlarge the general outlook, to stimulate men to a sense of responsibility, and to convey truth. In this task vigour was necessary, and humour would not come amiss. But honesty in the search, and truth as the distant goal, and sanity in expression were the attributes of the highest journalism, and these the *Lancet* had always shown, and never more plainly than under the guidance of its present editor. (Applause.)

Viscount BURNHAM, on behalf of the newspaper press, joined in the tribute. It was said that those who made idols were never idolaters, and he was free to confess that he did not idolize his journalistic contemporaries. But he did admire that great section of journalism which was devoted to technical and professional interests. While the circulation of the daily newspapers was national, the circulation of the professional and technical press was world-wide. Wakley's achievements greatly interested him, but as a journalist the thing he admired most about Thomas Wakley was that, whereas ten libel suits were brought against him, in which a total of £8,000 was claimed as damages, all he had to pay was the sum of £150 and one farthing!

Sir SQUIRE SPRIGGE, who was received with prolonged applause, said that although the foregoing speeches provoked reminiscence, he declined the invitation to indulge in memories. The past outrageous energies could never be repeated. The violence of past days was gone, but the desire for the right and the zeal to achieve it remained as forcible as they were a hundred years ago. He likened the centenary dinner to a milestone on the road of progress, and himself to a robin sitting twittering thereon. The *Lancet* was a friend-made paper. It relied on the good offices of its supporters who read each other's wisdom and clarified and corrected each other's views. If he might be forgiven a personal note on that occasion, he himself was a friend-made man, and he had called shamelessly upon the services of his friends. Through school, college, and hospital associations he had exacted levies from them, and as time went on enlarging environment gave him enlarging opportunities for such exactions. Further, any measure of success which he had gained had been in return for labours which he had loved to pursue. It was those who had to discharge a dull routine and to face distasteful duties whose devotion was really admirable, but as for himself he had enjoyed his work; it had been his delightful duty to record the phases and ramifications of medicine, which, although it might be only one section of the world's activities, was ever-developing and all-permeating. (Applause.)

Sir ERNEST HODDER-WILLIAMS, Chairman of the Directors of the *Lancet*, also responded to the toast, and expressed his great pleasure that when the change of proprietorship took place it involved no change in editorial direction, and that there never had been a single matter of policy upon which the Editor and Directors had not been in spontaneous and complete accord.

THE GUESTS.

Lord DAWSON OF PENN proposed the health of the guests. If they were right in saying that a man might be judged by his friends, surely that distinguished assemblage gave vivid and delightful expression to the appreciation in which the *Lancet* was held. The company represented other professions than the medical, and the professions had need to understand each other. Medicine in former days held itself in almost monastic detachment from social progress. But now that the health of the community, and not merely the cure of disease in individuals, was within its orbit, and was likely in the future to claim a dominant part of its attention, contact with other callings must be more close, and the thoughts and conclusions of medicine a necessary part of all-round statesmanship. That evening they were honoured by the presence of the French Ambassador, the genius of whose people had created much for which civilization stood, which genius was ever and abundantly evident in the field of medicine. The Lord Chief Justice was also among them, one of those disciples of the law who could not only entertain thought but adequately phrase it. Lord Burnham represented the Press, and the speaker could not help noting the conflict of advice which the Press gave in the nation's present controversies; evidently it was not only doctors who differed! In the Press also there appeared to be a good deal of reliance on "expectant treatment." A guest to whom they gave a special welcome was Mr. T. J. Wakley, now at Oxford, a great-grandson of the founder of the *Lancet*. He coupled with the toast the name of the Lord Mayor, who brought with him the lustre of personal distinction earned in the field of civic administration, and of Sir Dawson Williams, who had found in journalism the greatness of medicine, and in medicine the greatness of journalism, and to the great advantage of them all upheld the best in both. (Applause.)

The Lord MAYOR briefly expressed his pleasure at being present, not only as a civic administrator, but as President of the Hospital Sunday Fund, and spoke of the close connexion between the Corporation of the ancient City and the profession of medicine and organization of charity.

Sir DAWSON WILLIAMS offered to the *Lancet* the congratulations of what he supposed was the smallest specialty

in the medical profession—namely, medical journalism. Very few journals lived to celebrate their centenary. Times changed, and it required great powers of adaptation and phylatic vigour for a journal to adjust itself to the changing environment. The phylum of editors of the *Lancet* had shown this vigour from its founder and first editor down to his friend, the present editor, Sir Squire Sprigge, in whose hands its natural force had been in no way abated. A medical journal could not exist in these days unless it had the support of the profession. In saying this, it was not of the subscription list he was thinking, but of the support which came to such journals from specialists on every side, who were ready to place their knowledge at the journal's disposal. The principal motive which actuated them was probably love for their own particular subject, though they were moved also by a desire to help their colleagues, and perhaps by a feeling of loyalty to a certain journal. A general medical journal must at least touch on the immense variety of subjects raised by the progress of science in every department, and every author seemed to feel the necessity of writing at greater length than before. (Laughter.) This tendency affected all the sciences, and even the pure mathematician would replace a column of type by a formula so long that it must be printed lengthwise on the page! The multiplication of special journals was to be commended. Their conductors had their reward in the knowledge that they were smoothing the road for their fellow workers. He likened such journals to the large-scale ordnance maps which a man obtained when he wanted to buy an estate, but the general medical journal was like the map for the whole kingdom—the inch to a mile. He associated himself with all that had been said about the *Lancet*, and offered his good wishes for its future. (Applause.)

Sir CHARLES SHERRINGTON proposed the health of the Chairman, a toast which was pledged with much heartiness. Sir DONALD MACALISTER thanked the company for their kind forbearance with a chairman whose state of health was not of the best, and who was doubtful almost to the last whether he would be able to come at all. He joined in the tribute to Sir Squire Sprigge, who, to paraphrase the lady's description of her husband, was "more like a friend than an editor."

Paris.

[FROM OUR CORRESPONDENT.]

VERY comforting is it in these troublous times to discover that frontiers are not heaven high. The petition recently signed by the Academy of Medicine pleading for the maintenance of the Lister ward in the Glasgow Royal Infirmary is very significant in this respect. Few of our Academicians can ever have seen the ward, but there is not one who does not claim with pride to be the fellow citizen of Lister in the ideal city of science and humanity; there is not one who does not wish reverently to preserve for ever the footprint of Lister on the shifting sand of the ascent of man. We know next to nothing about the main question of the present necessities of the Glasgow Infirmary; we only ask ourselves, "What would Lister desire?"

The Spahlinger problem confronts us also in an unfortunate form owing to the publicity it has received in the public press; the public are told on the one hand that tuberculosis is conquered at last by a secret remedy, and on the other hand that this remedy is not available. Rarely has there been a more bitter jest. The general attitude of the medical profession betrays its indecision: for the first time we are asked to make an act of faith in the scientific sphere, and to turn our back on every principle that has been taught since Descartes. Faced with a problem the solution of which all the world is feverishly awaiting, we are asked to accept uncontrolled assertions. Three years ago when Spahlinger visited the Pasteur Institute, Dr. Calmette suggested to the Genevese researcher that he should proceed to publish the proofs which are indispensable, yet the secret was still kept. Unlike Great Britain we believe in Spahlinger, but we feel somehow that we are being false to a treasured tradition; the spirit that was in Pasteur, Lister, and Koch must not leave us.

The annual meeting of A.D.R. has revealed the fine progress made by this Association for the Development of Medical Relations between France and the countries belonging to the League of Nations. Our Foreign Office has instituted a department which is working in association with the Faculty of Medicine. A medical society has been started in conjunction with the Argentine Republic which is erecting a building for Argentine students in the students' quarter on the site of the dismantled fortifications. We hope that others will follow this example and that in the end we shall succeed in establishing an organization for post-graduate study. Professor Hartmann is energetically arranging courses of instruction so that foreign students may be able to concentrate their work into the minimum of time, following the example of Vienna before the war. It is hoped that a similar organization will be formed in every country, and that the time will come again when no man of science will begin to practise without having previously studied in a foreign school. So once Sir William Osler dreamed.

In the large amphitheatre at the Sorbonne there has just been held an important meeting to discuss international co-operation. M. Romain Coolus, the president of the Confédération des Travailleurs Intellectuels, set out the objective of this movement with which the BRITISH MEDICAL JOURNAL has already concerned itself. M. Destrée, at one time Minister of Art and Science in Belgium, spoke on the subject of co-operation of the League of Nations in intellectual matters. So from all sides comes the watchwords Co-operation and Mutual Understanding. Everyone should set himself to bring his stone to be built into the rampart which is menaced by the wave of gross materialism flung against it by the world crisis: particularly clear is the duty of the doctor whose culture is essentially world-wide.

The death of Dr. George Linossier, of Vichy, has robbed France of one of her best workers. He took up medicine late, having given himself first to chemistry. This foundation, was however, of great assistance to him. He devoted himself to the study of metabolism, a subject on which he became an expert authority. His solid scientific attainments enabled him to tackle the problems of gout and diabetes with a clarity of vision rarely met with in a clinician. We owe to him many theoretical publications on proteid metabolism and some practical observations produced by his experience in a very large private practice. To Linossier belongs the credit of having explained the significance of "diarrhée prandiale," and of demonstrating the value of a reduced diet in the treatment of diabetes twenty years before it received the unanimous recognition now accorded to it. His nature was simple and modest. He was a professor agrégé at Lyons and a corresponding member of the Academy of Medicine. He leaves to his colleagues the finest example of the virtue which characterized him all his life—uprightness.

England and Wales.

SUN AND AIR.

AT a meeting of the Royal Society of Arts on November 28th Sir Henry Gauvain repeated the now familiar story of the work in the Treloar Homes at Alton and on Hayling Island among children suffering from surgical tuberculosis. His photographs illustrated even more effectively than his words the excellent results secured. Lord Dawson of Penn, who presided, said that if he allowed himself to indulge in prophecy he would declare that in the region both of diagnosis and of treatment there was no direction in which the power of knowledge over health and disease would be more prolific of results during the next few years than in the scientific utilization of the action of radiations and the action of air. Dr. Rollier of Leysin must be regarded as a pioneer in the scientific application of that which had been known and applied in a loose

empirical way for ages. In this country, thanks to the late Sir William Treloar and to Sir Henry Gauvain, a successful scheme had been organized along the same lines, in spite of the fitfulness of our sun and the gloom of our winters. It appeared that the ultra-violet constituents in light raised the resisting and fighting power of the blood against infection, and thus a possible field for the treatment of many diseases at present baffling was opened up. Caution, of course, was necessary, because any application of such treatment beyond what careful research had indicated was likely to do harm and not good. He thought that Sir Henry Gauvain's results would have an effect on the general hospital service of the country. There would be a tendency for hospitals to be removed from cities, and for only such accommodation to be retained within the cities as was necessary for the reception of cases or for dealing with cases whose stay in hospital was likely to be brief. In the ensuing discussion, Mr. A. Green, a master in charge of the open-air schools of the London County Council, spoke of the successful institution of a sun-cure class at Stowey House, the L.C.C. school on Clapham Common, for "pre-tuberculous" children. This class was held last summer, and although the climatic conditions were far from satisfactory the thirty-six youths from the slum areas of South London who constituted the class showed distinct improvement both in physical and mental capacity. Next year, given a better summer, it is hoped to extend the experiment. Dr. Harriette Chick recalled her experiences in Vienna, where infants suffering from rickets had shown no particular improvement so long as they were kept in the ward, however well lighted and well aired, but in the cold sunshiny spring to which Vienna was accustomed these infants were placed out on the verandah, and within a very short time the improvement, as shown by the *x*-ray photographs periodically taken, of the bone formation was quite definite.

Scotland.

ROYAL EDINBURGH HOSPITAL FOR INCURABLES.

AT the annual meeting of the Royal Edinburgh Hospital for Incurables (Longmore Hospital) held on November 30th, Sir Henry Cook, Chairman of the Board of Management, who presided, announced that an anonymous donor had presented £10,000 for the purpose of improving the accommodation for the nurses. Plans had been prepared for a greatly improved dining-room, for a recreation room, lecture room, and for sick-room accommodation. The work was already in hand and the chairman hoped that this valuable addition to the hospital would be ready in another year. In the report submitted by the surgeon and physician to the hospital, Sir David Wallace, P.R.C.S., and Dr. Robert A. Fleming, F.R.C.P., it was mentioned that a number of cases had been discharged cured during the past year. A former patient who suffered from tuberculous disease of the spine, and who had been under treatment for about three years, was now successfully pursuing his profession.

CENTENARY CELEBRATIONS OF THE ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH.

During the last week of November a series of meetings and social functions were held to celebrate the centenary of the foundation of the Royal (Dick) Veterinary College at Edinburgh, by William Dick in 1823. Professor M'Eachran, LL.D., F.R.C.V.S. of Quebec, Canada, has presented a portrait of William Dick to the College. On November 27th Professor Theobald Smith, director of the department of animal pathology in the Rockefeller Institute for Medical Research, at Princeton, New Jersey, delivered an address in the University on "Comparative Pathology." After discussing some of the more technical aspects of animal pathology, he referred to its economic significance. Many of the causes or accessory factors of disease among animals were made by man. The task of the pathologist was to find methods to counteract the evil consequences arising from man's exploitation of animal life. The solution must differ from that demanded in human medicine. In the latter it was anything to save life, but in animals individual treatment must in a way be replaced by more preventive measures.

On November 28th the celebrations were continued by an oration from Sir John MacFadyean, LL.D., who said that in a sense the science connected with disease among the domesticated animals was quite modern. The first veterinary college had been founded at Lyons in the middle of the eighteenth century. In 1791 a school was founded in London, and William Dick had become a pupil of this school in 1817. Five years later he founded the College in Edinburgh. Speaking of foot-and-mouth disease, the lecturer said that in the present state of knowledge the veterinary profession could not be held guilty of incapacity because the virus of the disease in some obscure and indirect method at intervals found its way into this country from abroad. Stock owners in Scotland might, at least, be thankful that they had not been farming on the Continent of Europe during the last four years; they owed their comparative immunity from the disease in the last thirty years to the vigilance of the profession. With regard to glanders, the losses in the British Army from 1914 to 1918 were almost negligible in comparison with those experienced in recent great wars, and smaller than in the armies of any of the other combatants. In nearly every other civilized country the progress of veterinary science had been viewed as a concern of the State, and in France and Germany the maintenance grants to veterinary schools for a single year before the war exceeded the total amount given by successive governments of this country for veterinary education during the last 120 years. The greatest progress in the knowledge of animal diseases had been made in the last fifty years, during which period veterinary pathology had commenced to stand on its own legs. It would not be possible to create a class of men with an intimate knowledge of both human and veterinary pathology, but it would be better if veterinary surgeons knew more about human pathology and doctors more about animal diseases. The future progress of veterinary science in this country would largely depend upon whether it was at last considered worthy of national support, but next to that it would depend on the number of those who would enter the profession fully determined to leave it better than they had found it. Lord Forteviot presided at a reunion dinner held in the Royal College of Surgeons, which was attended by over 100 guests and members of the Veterinary College. Lord Provost Sleigh, in proposing the toast of the Royal (Dick) Veterinary College, traced its development from the time in 1823 when William Dick was appointed lecturer by the Highland Society of Edinburgh, later the Highland and Agricultural Society of Scotland. In 1844 the Royal College of Veterinary Surgeons came into existence by Royal Charter, and in 1916 the classes had all been transferred to the present building, where it was destined, he hoped, to a new era of prosperity.

With the object of raising a sum of £10,000 to institute a post-graduate Fellowship for animal research, a three-days' bazaar was held in the Music Hall, Edinburgh. The opening ceremony was performed by Field-Marshal Earl Haig, who said that they were taking part in a function of much more than local importance, and the occasion gave him an opportunity to say a word of thanks to a profession which, during the war, rendered very notable service to the army he then commanded. As the army grew so did the veterinary corps, and so did the work it had to do. The original Expeditionary Force started with well under 1,000 officers and men of all grades, and 6 veterinary hospitals with accommodation for 1,500 animals. The corps ended the war with 75 officers and between 16,000 and 17,000 other ranks; and 20 hospitals provided accommodation for 40,000 horses. The Expeditionary Force started with 53,000 horses, and in the course of the war this total reached a maximum of 475,000. This did not, however, represent anything like the whole work of the veterinary profession, for disease was reduced to a minimum. The skin disease statistics had been the envy of our allies; glanders, that scourge of the armies of other wars, was banished altogether; and while foot-and-mouth disease was raging throughout the

territory in Belgium occupied by our allies, they asked for help from our veterinary officers, who gradually stamped it out, and—what was more important—prevented the disease from coming to Great Britain.

Ireland.

DUBLIN BOARD OF GUARDIANS DISSOLVED BY MINISTRY OF LOCAL GOVERNMENT.

THE following letter has been addressed by the Ministry of Local Government to the clerk of the Dublin Board of Guardians:

I am directed by the Minister for Local Government to state that he has had under consideration the report of Mr. Seumas McLysaght, Inspector, on his recent public inquiry at the Dublin Union. A copy of the report is forwarded herewith. The Minister is satisfied from the facts adduced in the report that the duties of the guardians in the Dublin Union are not being duly and effectually discharged. He has been impressed by the inspector's comment—that the work of an elected board of seventy-two members has been in effect mainly carried out by only twenty-five, and that there was reason to believe that the sporadic attendance of negligent members had nullified the efforts of those who had been devoted to their public duties. It appears obvious to the Minister that it has become an imperative duty on him in the interests of effective and economical administration to dissolve the guardians of the Dublin Union. The decision is embodied in the accompanying order dissolving the Board of Guardians and appointing Mr. Seumas Murphy as the person to whom their several powers and duties have been transferred. The Minister trusts that those who have been guardians and others interested in the important public functions with which Mr. Murphy has been entrusted will accord to him a full measure of co-operation and assistance.

The Inspector in his report discussed some matters of medical interest.

Referring to the administration under the Medical Charities Act, the report stated that the dispensaries were in a dirty condition. It had been complained that the supply of coals usually received early in October had not yet been delivered, resulting in patients having to wait in the cold. In one instance, continued the report, the Local Government Inspector had failed to find either doctor or porter on the premises during dispensary hours. In all cases the inspector found measure glasses in a dirty state. Medicine seemed to be thrown about in an untidy manner; in many cases poison presses were not locked. The report further declared that neglect shown in the past of Poor Law dealing with the boarded-out child, the child at nurse under the Children's Act, and the child adopted on payment of a lump sum, just prior to the present administration, was painful. Evidence showed that an actual system of child farming had been indulged in. The case where six babies died in two years painfully illustrated this. The unregistered nursing home was an equally grave danger. There would appear to be serious need of legislation under which nursing homes, private or otherwise, would be compelled to register before accepting the care of any child.

Supervision of workers by the system is, the report continued, very defective. Serious attention is drawn to the method of making appointments. Attention is drawn to the fact that the collective number of days lost in respect of sickness totalled 23,981, and the total cost of providing substitutes amounted to £7,305. Appointments are made with enthusiasm by the Board, but, it is complained, there is, if anything, a disinclination to order dismissals or suspensions. It would appear (the report continued) that every officer was a law unto himself, and, although the master, matron, and doctors were responsible for the efficient discharge of multifarious duties, the Minister was satisfied that they were not able to exercise that control so very essential to the proper and economical management of various departments. The result of the guardians' indifference in dealing with complaints weakened the authority of the executive, and that served to strengthen dangerous tendencies and cause a spirit of insubordination to develop that would be highly prejudicial to the best interests of the institution. The doctors were powerless to enforce discipline, and complaints received such scant attention that it was only in very exceptional circumstances that the Board was troubled in this respect. The guardians had not exercised proper management in connexion with hospitals, dispensaries, outdoor relief (particularly in rural areas), stores, staffs, appointments, discipline, admissions, and discharges.

A LOCAL centre for combating cancer has been established for the region of Lyons and South-east of France, under the directorship of Dr. Léon Bérard, professor at the Lyons Faculty of Medicine.

DR. G. DE CLÉRAMBAULT, the successor of the late Ernest Dupré, has recently commenced a course of lectures on urgent psychiatry and psychiatry in general at the Police Infirmary, Quai de l'Horloge, Paris. The lectures, which are free to medical practitioners, are held every Saturday afternoon at 3 p.m.

Correspondence.

GAS LEAKS AND CARBON MONOXIDE POISONING.

SIR,—Mr. A. Webster and I have been testing the smellable limit of coal gas and find it about one part in 2,000 parts of air. Gas can just be distinctly smelt when one sniffs the air issuing from a cylinder containing this dilution. Taking the normal percentage of oxygen in the arterial blood as 18, the prolonged breathing of one part of coal gas in 2,000 parts of air would, if there were 10 per cent. of carbon monoxide in the gas, finally saturate the haemoglobin with carbon monoxide to the extent of 1 volume per cent.; if there were 20 per cent. in the gas to the extent of 2.7 volumes per cent. The former is the amount of saturation which Mr. H. Hartridge found in the blood of one heavy smoker. All smokers must have some amount of carbon monoxide in their blood when smoking, and give it off between whiles. Carbon monoxide can only accumulate in the blood up to the saturation corresponding to its partial pressure in the air—no further.

Dr. Hazleton in his paper "On carbon monoxide—a predisposing cause of pulmonary tuberculosis" (BRITISH MEDICAL JOURNAL, October 27th, 1923) leads the reader to think that the longer the breathing of air containing 0.01 per cent. of carbon monoxide the greater must be the saturation. This is not the case. Equilibrium is reached and the saturation proceeds no further. There will finally be 2.7 volumes per cent. of carbon monoxide and 15.3 volumes per cent. of oxygen in the blood. The saturation process is a slow one at such a low dilution, but will not go above this figure however long the air is breathed. In fresh air it again escapes from the blood. In the *Journal of Physiology*, vol. 44, p. 275, 1912, "The laws of combination of haemoglobin with carbon monoxide and oxygen" are given by C. G. Douglas, J. S. Haldane, and J. B. S. Haldane.

Suppose the 18 volumes per cent. of oxygen in the blood is diminished by 2.7, this is of no consequence to the resting person because he has more oxygen in his blood than he requires; a surplus is kept ready for use on exertion. Douglas and Haldane found that when the partial pressure of oxygen corresponded to an altitude of 15,000 feet, a 23 per cent. saturation of the blood with carbon monoxide was tolerated without inconvenience (*Journal of Physiology*, 1912, 44, p. 332). Apart from deprivation of oxygen, carbon monoxide has no poisonous effect. There is no evidence that the employees of gasworks, who are daily exposed to the smell of gas, are less healthy than others. Many live to old age and draw their pensions for many years.

The public, of course, must be taught that the least smell of coal gas is a danger signal and that all leaks must be stopped. Only a wanton disregard of the warning smell, the close shutting of rooms, and prolonged breathing can raise the percentage of carbon monoxide in the blood to the danger point.

I gave evidence to the recent Board of Trade Committee, appointed to consider this subject, in favour of allowing a higher percentage of carbon monoxide in coal gas, on the grounds that the cheaper gas becomes and the more it is used for heating the less fouled will be the cities from smoke. Smoke does incomparably more harm to health and happiness than is caused by the few accidental and suicidal deaths resulting from inhalation of coal gas. The Committee, in their report, took this point of view. I hope Dr. Laird will consider it. An essential part of this policy is the teaching of "safety first" in the matter of leaks and fittings.—I am, etc.,

Loughton, Dec. 3rd. LEONARD HILL.

SIR,—The symptom-complex described by Dr. Hazleton in the BRITISH MEDICAL JOURNAL of October 27th (p. 763) as due to carbon monoxide poisoning is common. The usual train is (1) headache, (2) lassitude and anorexia, (3) shortness of breath on slight exertion, (4) anaemia of the yellow type, not ordinary house pallor. The next stage is myocardial degeneration, evidenced by increased pulse rate, possibly a pushed-out apex beat and signs of

slight dilatation, and evidence of decreased cardiac reserve.

A cultivation of the senses of smell and taste is essential to success in general practice. Diagnosis begins on the doorstep. As I cross the threshold I deliberately savour the smells by drawing a long breath through the nose, and employing also the sense of taste by deliberately "tasting the air." Some aromas merely smell, others only taste, many do both. Small gas leaks only smell; the products of the imperfect combustion of gas—equally if not more dangerous—both smell and taste. Wherever gas is really sensed a lowered condition of health will be found in the whole household, or at least that part of it—mainly, of course, the feminine element—which spends most of the twenty-four hours at home. This occurs very nearly as frequently in the larger houses of the well-to-do as in the small homes of the working classes, but the evil effects in the latter are more pronounced, as these homes are difficult or impossible to ventilate without draughts. In my mind the effects of gas leaks and oral sepsis run a very close race for pre-eminence as primary causes of general malaise, and later of serious disease. I am an enthusiastic gas user; my house is entirely heated by gas fires, and all cooking is by gas. But every fitting fits, and every fire is properly flued, and every flexible tube is renewed every six months and tested very frequently. Dr. Hazleton has indicated one of the sources of gas leaks—namely, the pendent position of the ordinary gas burner cock or tap. But leaks due to this cause form only a tithe of the usual domestic leaks. The gas cooker is by far the worst offender; then comes the gas fire as usually fitted, and the flexible gas tube is a good third. The gas companies will not fix proper flues to gas fires and will not adequately block off the chimney openings up which the gas flue must pass. Consequently nearly all gas fires suffer from a down draught containing much carbon monoxide. Gas-fitters will daub white lead on faulty joints and fail to screw up connexions, and will even at a pinch fix a section of faulty pipe. The modern gas fire itself is as nearly perfect as such an apparatus can be. Until the gas companies and the public generally come to recognize the importance of the prevention of even the smallest leaks the mass of ill health due to this cause will continue. As Dr. Hazleton points out, 0.01 per cent. of carbon monoxide will in eight hours saturate the blood to the extent of 17 per cent. Smaller amounts inhaled daily for weeks will cause chronic ill health even amongst the young and vigorous. To the feeble and aged confined to sick-rooms the results are much worse. Monopolies are not good things, and one wants to see the brave fight between gas and electricity continue. But the gas companies must eradicate gas leaks.—I am, etc.,

October 29th. M.A., M.D., D.P.H.

ETIOLOGY OF CANCER OF THE OESOPHAGUS.

SIR,—In your issue of November 24th Dr. G. D. Parker makes eight "suggestions as to facts to be observed" in connexion with the origin and course of carcinomatous tumours in the human subject.

That the use of the expression "facts to be observed" is, to say the least, unfortunate appears to be realized by Dr. Parker himself, for he rather naïvely adds, "such facts as here stated are put down as individual observations, and no doubt are inaccurate on many points." In other words, he is prepared to find that some of the alleged facts may turn out to be either unproved or unprovable assumptions, if not obvious fictions.

Under the latter category I would put the assertion "(*b*) In cancer of the oesophagus—the very common association either with the excessive drinking of concentrated forms of alcohol or of excessively hot fluids." Cases of cancer of the oesophagus investigated oesophagoscopically and otherwise by me can be reckoned not merely by the score but run into many hundreds. The number of living individuals of cancer age who indulge excessively in ardent spirits and in very hot fluids, or both, must be relatively large, say at least 160,000 probably, whereas the number of individuals who acquire cancer of the gullet is comparatively small—the average yearly death rate for England and Wales from gullet cancer for the ten years 1911 to 1920 was a little under 1,600! In my investigations the number of those individuals who were found to be the victims of cancer of the oesophagus who gave a clear history of excessive drinking of either ardent spirits or very hot fluids or both has not been such as to impress me with the correctness of the alleged association implying cause and effect which Dr. Parker formulates. The conclusion I have arrived at is, of course, quite contrary to my preconceived expectations based on what I was taught as well as on *a priori* grounds.

There would not appear to be anything antecedently improbable in the suggestion, in accordance with current teaching, that the consumption of large quantities of unwatered spirits and hot drinks might be one of several possible factors operative in the origination of cancer in the buccal cavity (including the tongue), the fauces, the pharynx, the gullet, and the lesser curvature of the stomach; all that I can affirm is that in my large series of cancers of the gullet I have failed to find any convincing evidence of the frequent presence and operation of this factor as a predisposing or exciting cause.—I am, etc.,

London, W., Dec. 4th. WILLIAM HILL.

SUPRAVAGINAL HYSTERECTOMY AND PANHYSTERECTOMY.

SIR,—Your issue of December 1st, in the report of a meeting of the North of England Obstetrical and Gynaecological Society (p. 1045), contains an abstract of a paper by Dr. Fletcher Shaw on the above subject. "He said that some gynaecologists believed that panhysterectomy should be done whenever the uterus had to be removed." As one who holds that belief and has exclusively practised panhysterectomy for twenty-three years, I should like to make a few comments on his paper, so far as I can judge it by the abstract.

Dr. Shaw has had, in a period of eighteen months, three patients in whom cancer of the cervix occurred after supravaginal hysterectomy, "although," he adds, "these cases were the only ones he had ever had." The important point is not whether he had had other cases, but whether other patients whose uteri he had amputated had had the disease and had taken their cases elsewhere. I have recently seen a case of carcinoma of the cervical stump twelve years after supravaginal amputation of the uterus for myoma by another gynaecologist. May I ask how many consecutive cases of supravaginal hysterectomy Dr. Fletcher Shaw has seen and examined after twelve years? (Dr. Chisholm's case shows that it may occur even after twenty-five years.)

Is Dr. Shaw, who has in fact had three cases in eighteen months, justified in saying that malignant disease of the cervical stump is "very rare"? No less than 276 cases have been collected from American sources alone. It formed 6.5 per cent. of all the (123) cases of cancer of the cervix admitted to the Massachusetts General Hospital in a period of five years (1917-22).

I have personally seen six cases, of which four had been operated on by other gynaecologists and two by myself. My two cases occurred amongst thirty amputations (6.6 per cent.), and caused me to give up the operation last century.

The superiority of total hysterectomy over amputation has been emphasized in recent years by Polak and Mayo in America, Döderlein, Bumm, and Franz in Germany, Weibel in Vienna, and de Ott in Petrograd. I have performed it consistently for twenty-three years. Dr. Shaw asked his hearers if they had had cases of cancer in the cervical stump. Of the five who replied three had had cases (two in nulliparae) and two did not remember. The president, Professor H. M. Phillips, however, believed that panhysterectomy was the better operation in all cases.

If Dr. Fletcher Shaw had acted on the advice I gave in 1916 (*Proc. Roy. Soc. Med.*, vol. x), and had performed total hysterectomy instead of amputation, he would not have had those cases of cancer of the cervical stump to record. In the same volume and in vol. xi I published three papers showing the superiority of panhysterectomy;*

* See also my first paper, "Total Abdominal Hysterectomy for Fibromyoma Uteri," BRITISH MEDICAL JOURNAL, October 11th, 1902.

but my view received no support either from the president or any other gynaecologist except Mr. Malcolm. Now I am glad to have the support of the President of the North of England Obstetrical and Gynaecological Society. I shall hope some day to have the support of the Manchester school, and, in order to encourage them (especially my friend Dr. Clifford), I may add that in my opinion the total operation, properly performed, has a lower mortality and is in all important respects superior to amputation. Amputation of the uterus is, in my opinion, an operation which should not be performed, and unless it ceases to be performed—and it is being done every day—I do not say your columns will be filled with the records of cases of cancer of the stump, for all will not have the courage of Dr. Shaw and publish them; but many women will lose their lives as a result of that specious but unsatisfactory operation.—I am, etc.,

London, W., Dec. 2nd. HERBERT R. SPENCER.

DIFFICULT MIDWIFERY IN GENERAL PRACTICE.

SIR,—I am glad to see in your correspondence columns a letter which shows that I am not alone in feeling that experience of midwifery in general practice does not accord with the very serious pronouncements of the eminent obstetricians and gynaecologists whose opinions and teaching have been published in the JOURNAL during the last few weeks.

Being still in touch with many general practitioners who, like myself, have been in practice for the past twenty or thirty years, I have so far failed to find anyone prepared to admit the practical possibility of carrying on, with the severe restrictions, specially in the use of forceps, which are now pronounced to be necessary: Dr. Vincent Norman's quotation, "if the head does not descend with gentle traction, perforation of the head should be performed," is by itself a killing criticism; my teachers—all, alas! passed over: Dr. Herman, Dr. Cullingworth, and later Dr. Drummond Maxwell—would, I feel sure, never have admitted the necessity for such a confession of impotence.

Although in gynaecological practice one does see not infrequently serious tears, with consequent disabilities, these are not, in my opinion and experience and that of many friends, inevitable, and even if they do sometimes occur they are remediable, while life cannot be restored to an infant destroyed to make the obstetrician's job easier.

While I make no plea for force as a universal remedy, I am sure that the majority of medical men of large experience will remember scores or hundreds of cases in which force, applied intermittently without compression as one can do with axis-traction forceps, proved to be certainly the greatest power for good in the doctor's armamentarium. I venture very humbly also to question the necessity for the comparatively frequent performance of version now advised; with an ordinary breech presentation, while the danger to the infant is very slightly increased in comparison with a vertex, this danger is very small if delivery is properly managed and not hurried by efforts at traction; version of course has its application for delivery when used in appropriate cases of pelvic deformity.—I am, etc.,

London, N.W., Dec. 2nd. CORAM JAMES.

SIR,—I was more than interested in Dr. Vincent Norman's letter. I entirely agree with all that he has to say. Only last week I delivered, with forceps, single-handed, out in the country, a patient with an unreduced occipito-posterior presentation. Certainly I had rather a hard pull, but I secured a healthy child and the patient made a perfect recovery. Had I read Dr. Luker's remarks previously I am afraid it would have upset all my confidence. Midwifery is a practical art and should be taught by practical men; and the less we read of purely textbook difficulties, and operations that require performing once in a generation, the better for the patient and ourselves.—I am, etc.,

Devon, Dec. 2nd. J. J. BROWN, F.R.C.S.E.

SIR,—General practitioners who complain of the hard things said about the treatment of some cases of difficult midwifery in general practice seem to be inclined to think that specialists who read papers on the subject have no grounds for the statements which they make. There are some points worth their consideration. No one who has read a paper on difficult labour in general practice has been so foolish as to suggest that the majority of general practitioners did their midwifery work badly. A doctor who takes the trouble to attend British Medical Association meetings at which obstetrical matters are discussed is not likely to be so careless or haphazard in his methods as to warrant the strictures which are sometimes passed on his less careful brethren.

Another point is that the readers of such papers have the best grounds—namely, that in their hospital work they have to try to repair the damage which has been inflicted by unwise methods of delivery. There must be something wrong or we should not see patients maimed or dying from the treatment of conditions in which ante-natal examination and appropriate treatment would have resulted in both mother and child surviving undamaged. When a prolonged pull with the forceps has failed to deliver and the child is dead, it is undoubtedly better to perforate the head and to deliver without injury to the mother than to persist in attempts to drag out the child with the forceps, with the almost certain result of severe damage to the mother, or to deliver by the very dangerous method of version after the forceps has failed. The manipulation necessary in this method of delivery is likely to cause severe injury to the mother and a great risk of sepsis. I have recently seen a case in which the following occurred in a young primigravida: Occipito-posterior position, unsuccessful attempt at manual rotation, prolonged pull with the forceps, version, delivery of a dead child, complete rupture of the perineum, death of the mother from general peritonitis. These tragic occurrences are mostly avoidable, and a member of a hospital staff who comes in contact with them is not "throwing stones" if he does his best to point out the way to avoid them.—I am, etc.,

London, W., Dec. 3rd. HENRY RUSSELL ANDREWS.

THE USE OF BUTYN.

SIR,—Like cocaine, butyn is not an anaesthetic which can be used haphazard, and though its danger is probably less than that of cocaine the recognized dosage should be adhered to, and Dr. E. Watson-Williams's warning should not be forgotten—"caution is required in using butyn." It should not be administered in association with cocaine or other local anaesthetics, but there is no objection to adding adrenaline.

Experiments have shown what is the minimum lethal dose with small animals, but at present the amount is not known in the case of human beings. In a letter I have received from Professor Roger Adams of the University of Illinois—one of the joint inventors of butyn—he informs me that of the five deaths which have occurred from its use "no details could be obtained from the doctor" in one case.

"In one other case only," he says, "was a death reported where butyn alone was used, and this was when a very large amount was injected intraspinally. In the other three cases there was a combination of troubles which were probably an important factor in the deaths, although butyn was given as the primary cause. In particular, two of these deaths, reported by a well known eye, nose, and throat specialist, may be mentioned. When these deaths occurred two men from the Abbott Laboratories immediately went to the place where they occurred. In both cases morphine and butyn were used, and the attending nurse reported that cocaine was also used. I mention this latter fact because in the American Medical Association report no mention was made of the fact that other drugs were used with the butyn in these particular cases. An autopsy showed that one of the patients had a severe chronic trouble and the other patient, although no autopsy was made, was not a strong individual. Since it has been shown that administration of several drugs of this kind tends to increase the toxicity to the patient, it seems unfortunate that greater care has not been used in reporting the details connected with each death.

"The Abbott Laboratories have had a continuous fight to prevent surgeons from using too large amounts of butyn. It is not claimed that butyn is non-toxic, but it is claimed that it is less toxic than cocaine in man, and has a greater anaesthetic effect. The inclination of the careless surgeon has been to use amounts corresponding to those that he might use of novocaine, in spite of the warning given in the circulars describing the use of butyn."

Dr. Burdick, President of the Abbott Laboratories, informs me that he was present at the autopsy of one of the fatal cases and that "it was probably due to endocrine disturbance, as the autopsy showed enlarged thyroid, persistent thymus (the patient was a boy of 15), disease of one adrenal, enlargement of the mesenteric glands, etc." Regarding the use of butyn in intraspinal anaesthesia, the weaker anaesthetics seem to be sufficient, and neither cocaine nor butyn is required. Nevertheless, Dr. Babcock of Philadelphia, who is probably the leading advocate of intraspinal anaesthesia in America, is employing the latter with much satisfaction.

In conclusion, it is claimed that although like cocaine butyn has some degree of toxicity, yet with ordinary care it may be used with safety, always remembering that smaller doses are required than in the case of the older anaesthetic.—I am, etc.,

Bath, Dec. 2nd. W. M. BEAUMONT.

TWO SOLECISMS.

SIR,—At a time when all pious citizens are devoutly considering the respective demerits of Protection and the Capital Levy as cures for unemployment it may seem frivolous to look up words in Liddell and Scott's *Lexicon*. However, on so doing I find that σολοικισμός means incorrectness in the use of language, σόλοικος using provincialisms, and that the verb is used of one who errs against good manners. Martial uses "soloecismum" for a mistake, or a slip of any kind.

The word occurs in a similar context in Juvenal, and in *Anthologia Graeca* of orators using uncouth words and gestures. Liddell and Scott mention only to reject the statement that the word means a provincialism.

Addresses on letters seem no more important than names on brass plates or on farm carts. The truth is we have no regular mode of addressing each other either by mouth or in writing. Only in the last fifty years has the title "esquire" become general. Anyone conversant with the literature of the last age will bear me out in this. Again, we have no general word for a medical man, such as "médecin" in French. "Leech" is obsolete. Surgeons now are all great operators, and physicians folk who write prescriptions. My father, who has been dead nearly fifty years, was known (in the country) as "Lawyer X." to distinguish him from a neighbouring farmer of the same name. I believe that in private barristers always address judges as "judge" without further addition, although in court "Your Lordship" is the proper phrase, and I have heard that bishops are addressed in the same way by their intimates (if such there be). The rector of a parish or the warden of a college is usually addressed on letters as "The Rev. the Rector of Blankton," "The Rev. the Warden, . . . College," but in private as "Rector" or "Warden." Many people still address letters to the clergy as "The Rev. Mr. Brown, the Vicarage, Blankton," and though I cannot lay my hands on it, I have a recollection of a letter addressed to "Mr. (=Master) Dr. Latimer," the Reformer.

As to the familiar address "Good morning, doctor," I can produce a parallel from Arabic—"Ya hawadji," meaning "Thou merchant," and many visitors to Egypt have received demands for backsheesh under this term.

Perhaps after all, these matters may be left to wait till we have settled Protection, the Capital Levy, Panel practice, and the peace of Europe.—I am, etc.,

November 25th. OBSCURUS.

SIR,—May I ask to whom the remarks of the letter of "Suum Cuique" in the JOURNAL of November 24th (p. 1006) are addressed? Surely the "you" which is used several times cannot refer to yourself as editor or to members of the medical profession as JOURNAL readers! The "you" and the "wine merchant, lawyer, and housewife" seem incompatible.

Regarding habit No. 1—how should we address the doctor? Surely not plain "Smith" or, if we remembered his Christian name, "John Smith"? The "John Smith, Esq.," which "Suum Cuique" seemed to hint at would certainly not be correct in these days when the majority of doctors are no more squires than other hard-working folk.

If "Suum Cuique" made the contents of the letter a little less intricate we might be able to understand his point of view.—I am, etc.,

November 24th. SEDGE.

SIR,—Your correspondent "Suum Cuique" has hit the nail, but not right on the head. The truth is that "Doctor"—or the abbreviation "Dr."—is in reality an academic and not a professional title. It implies the holding of a doctor's degree, whether in medicine, science, philosophy, divinity, or music. Strictly speaking, it ought not to be applied to a medical man unless he holds the degree of M.D. Custom gives it to anyone holding a medical qualification, but in such case it is only a courtesy title, and the qualified physician who does not hold the M.D. degree ought not to *call himself* "Doctor," whatever his friends may do.

A somewhat analogous case occurs in the use of the term "Esquire." This should be applicable only to landed proprietors, though it is now applied indiscriminately to every man holding any social position at all. But to call *oneself* "Esquire" or to put it on one's visiting card would be the action of a "bounder"—it is purely a courtesy title.—I am, etc.,

November 27th. SCIENTIAE DOCTOR.

SIR,—"Suum Cuique" has fallen into the common—or shall I say vulgar?—error of supposing that the word "doctor" connotates a medical practitioner.

Doctor is, of course, the highest degree granted by a university, in the faculty of medicine amongst others. It is, therefore, perfectly correct to address the possessor of this degree, both verbally and in writing, by the title "doctor." Indeed, a failure in this respect is a distinct breach of the amenities.

"Doctor" ranks with "colonel," "major," "general," etc., as an honourable title. It does *not* indicate the holder's profession; in this respect it differs from the examples given above. My remarks do not refer to the use of the title "doctor" by medical practitioners who have not a university degree.—I am, etc.,

Salford, Nov. 25th. STANLEY HODGSON.

*** As often happens, this correspondence appears to be drifting away from the points raised by our original correspondent. It is, of course, true that the title of "Dr." cannot be limited to the medical profession, since universities grant doctorates in other faculties. It is also true that the title of "Dr." is commonly applied to medical practitioners, even though they do not hold a university degree. In 1903 the Association decided that practitioners other than graduates in medicine and surgery were not justified in styling themselves "Dr."; but at the Annual Representative Meeting in 1913 the matter was reconsidered and the resolution of 1903 rescinded. This action was taken after the Royal College of Physicians of Ireland had resolved that a Fellow, Member, or Licentiate of that College might, by courtesy and usage, call himself "Dr.," but had no right to use the letters "M.D." or call himself "Doctor of Medicine," unless he held that degree from a university. In 1912 the Royal College of Physicians of London modified one of its by-laws which had forbidden a Fellow, Member, or Licentiate of the College to assume the title of "Dr." or append to his name the title of "Doctor of Medicine," or the letters "M.D." or any letters indicating that he was a graduate of a university, unless he had obtained a degree entitling him to do so. The modification was the omission of the words "assume the title of Dr. or."

VACCINATION PROPAGANDA.

SIR,—The great flaw in Dr. Killick Millard's argument is his assumption that every attack of small-pox in an unvaccinated person would be so severe as to lead to immediate diagnosis. Experience in the North and Midlands proves, however, that even in unvaccinated people the disease may be so mild as to be unrecognizable by the general practitioner. If, therefore, the whole population were unvaccinated it does not appear that we would have any greater

protection against diffusion of infection, by early diagnosis of mild cases.—I am, etc.,

London, E.C., Nov. 30th. T. F. MANNING.

SIR,—One has always rather admired Dr. Killick Millard, but he is now shown to be even more admirable than one thought. A man, and a medical officer of health into the bargain, who after (1) side-slipping, and (2) plunging into a mirage, finally (3) "still stands on his head"—such a man has unwonted stuff in him. It makes one proud to be an M.O.H.—I am, etc.,

Bromsgrove, Nov. 30th. H. CAMERON KIDD.

EPSOM COLLEGE.

SIR,—It is again my duty to bring before your readers the good work carried out by the Royal Medical Foundation of Epsom College, which consists of (*a*) giving pensions of £30 a year to fifty aged and impecunious medical men or their widows; and (*b*) providing, free of charge, a high-class education, together with clothing, maintenance, and pocket money, for fifty necessitous sons of medical men.

To enable these beneficent objects to be carried out the Council have had to supplement the moderate income derived from invested funds by procuring contributions from medical men and others amounting to over £6,000 a year. It is necessary to obtain this large sum from subscriptions and donations owing to the greatly increased cost of food, clothing, lighting, heating, wages, repairs, and general expenditure. Furthermore, Epsom College, like other secondary schools throughout the country, has had to incur a heavy additional expenditure in masters' salaries, while a more costly masters' pension scheme has recently been instituted in order to attract the best masters to the College.

I therefore urge all friends of the College to do what they can to assist the Council to procure the further financial support needed, by increasing their own subscriptions for a few years, and by bringing the good work of the Foundation before medical men and others.

The Foundation has strong claims on the public, bearing in mind the services rendered by the medical profession in the prevention of disease as well as in the treatment of illness and accidents. It frequently happens that, owing to the exceptional risks to which medical men are exposed, permanent disablement and even premature death occur in the course of the discharge of their everyday duties. The Council have received numerous applications for assistance as a direct consequence of the war, and Foundation Scholarships and Salomons Entrance Scholarships have been awarded to several boys whose fathers were killed in action or lost their lives in torpedoed vessels. But these Scholarships, together with the Council Exhibitions, very inadequately meet the calls for aid in forwarding the education of many very necessitous and deserving sons of medical families.

The Pensioners and Foundation Scholars are elected in June each year by the votes of the Governors, who are allotted ten votes for every guinea subscribed annually, and ten votes a year for life for every donation of ten guineas.—I am, etc.,

November 30th. HENRY MORRIS,
Honorary Treasurer of Epsom College and its Royal Medical Foundation.

PUERPERAL MORBIDITY.

SIR,—With the authority of the honorary surgical staff of the Jessop Hospital for Women, Sheffield, I beg to make the following statement in reply to the criticism of Dr. Gibbon FitzGibbon in the BRITISH MEDICAL JOURNAL for November 24th (p. 1004) levelled at their interpretation of the British Medical Association standard of puerperal morbidity in the report for 1922.

Their method of arriving at the morbidity rate is carefully defined in the report as including "all cases in the first eight days with a rise of temperature *over 100° F.* occurring twice in twenty-four hours and excluding the first day," and the rate is given in percentages of deliveries to exclude fatal cases and also to include them.

Substituting the word "reaching" for "over" before the figure 100° F. in the above definition, then the morbidity rate, including fatal cases, works out at 10.8 per cent. as against 7.9 per cent. in the published report for 1922.

It is debatable as to whether Dr. Gibbon FitzGibbon's interpretation of the words "on any two of the bi-daily readings from the end of the first to the end of the eighth day after delivery" as given in his letter but not in the Rotunda Hospital Report, or that given in the Jessop Hospital Report, is the correct one. If the former, then the morbidity rate for 1922 should read 11.6 per cent.—I am, etc.,

J. ERIC STACEY, M.D.Lond., F.R.C.S.Edin.,
Registrar, Jessop Hospital for Women, Sheffield.

Sheffield, Dec. 4th.

THE RIVIERA.

SIR,—I am writing to impress on the medical profession that the French Riviera, to which patients may be sent during the coming winter, is not, as the textbooks teach, a marine climate. It is essentially a mountain climate, in that during the winter the air passes almost continuously at night, and during nearly all fine days (and most days are fine), from the mountains to the sea. The sea-fronting hotels are, climatically, as remote from the sea as those more inland. Patients needing moist, soft, soothing seaside air will find it at Biarritz, or on the Cornish Riviera, but not on the French Riviera, where the air is dry, fresh, and stimulating.

This letter was called forth because I have lately purchased an English book on treatment, which classes the French Riviera with Bournemouth and Torquay, and says that, because of the sea air, it is "apt to disagree with those who have inactive livers." Starting from false premisses, the conclusion is false. For inactive livers, as also for catarrhal conditions, whether bronchial, aural, or intestinal, the Riviera is pre-eminently suitable. The malady often disappears without any professional help.—I am, etc.,

Mentone, Nov. 27th. D. W. SAMWAYS.

Obituary.

G. DUNCAN WHYTE, M.D.EDIN., M.R.C.P.LOND.,

Examiner in Medicine, Hong-Kong University.

GEORGE DUNCAN WHYTE, who died at Hong-Kong on November 25th, will be remembered by a large circle of Edinburgh men who graduated about 1900. He was a remarkable man, and even those who knew him least will recall the unmistakable characteristics of his rapid walk and his still more rapid talk. But those who knew him intimately—and they were perhaps few—recognized in him one quality above all: he was indomitable. His sense of duty was always driving him along, and it would be difficult to name a student of his time who contrived to pack so much activity into his undergraduate career. He certainly did more than his share of public work, and his earnestness in study was only equalled by his enthusiasm for clinical work. While he did not achieve many prize medals he kept up a remarkably high average in his classes. Indeed, those who knew him best realized that if he had been a "pot-hunter" he could have collected a remarkable series of honours. But Duncan Whyte was an all-round man at work. He had always intended to be a missionary, and he kept before him an ideal of all-round efficiency that precluded half-heartedness even in the least interesting subject. If he excelled in one subject more than another it was perhaps anatomy, when he became a demonstrator and prosector to Sir William Turner.

In 1902 he joined the English Presbyterian Foreign Mission and sailed for Swatow. His value and efficiency as doctor and surgeon, as teacher and preacher, can easily be guessed by those who knew the man, his spirit, and his equipment. In 1913 he received a gold medal for his M.D. thesis on "An epidemic of cholera treated by intravenous saline injections." But this was merely one indication of his all-round professional efficiency. It was impossible to mention any department of therapeutics in which he did

not show a practical knowledge of the most recent developments. To his hospital and medical college he used to take with him after each furlough not only the very latest appliances and apparatus, but also a thorough knowledge gained by strenuous study in the months that should have been given to relaxation. But he never learned how to relax; it was almost as if he had known from his student days that his life was to be cut short in its prime, and as if that sense of pressing haste and strenuous activity arose from such a source. Some of us who took our Hippocratic oath with him may live to hoary old age, but it is unlikely that, even so, any will achieve what Duncan Whyte crowded into the twenty-three years of his professional career.

In 1922 he came near to death by sprue, and reached this country in a serious condition. He improved, and persistently minimized his symptoms. He was soon doing post-graduate bacteriology when he should have been resting. Finally he sailed early in October to return to his post; but soon became seriously ill. At Colombo he was already in danger; he reached Hong-Kong, and soon after landing he died. One of the deepest regrets of his life was that his Mission Board refused to give him permission to serve with the R.A.M.C. during the war. Had he done so, and had he fallen in France, he could not have given his life more directly than he has done in the cause of humanity. Those who had the privilege of his intimate friendship will know that there will never be another quite like George Duncan Whyte.

H. C. M.

Dr. WILLIAM GOWANS of South Shields died on November 15th, aged 77. He was a native of Galashiels, and took the diplomas of L.R.C.P. and S.Edin. in 1868 and F.R.C.S. Edin. in 1883, and graduated M.D.Durh. in 1886. Soon after qualifying he went to South Shields and took charge of the old dispensary, now merged in the Ingham Infirmary, with which institution he was associated for many years as honorary surgeon and subsequently as consulting surgeon and vice-president. He continued to practise in South Shields up to the time of his death. Dr. Gowans was elected a member of the British Medical Association in 1870, and served as president of the North of England Branch, and from 1912 to 1915 was chairman of the South Shields Division. He was also a former vice-president of the Durham Medical Society. He was appointed to the Commission of Peace in 1892, and took great interest in the volunteer movement, having served as surgeon and afterwards as commanding officer of the 3rd Durham Volunteer Artillery; he retired with the rank of lieutenant-colonel. During the war Dr. Gowans had six sons holding commissioned rank, and he received a letter from Buckingham Palace expressing the King's appreciation of the patriotic spirit which had prompted them to give their services. One son died of injuries received during the war. Two other sons are members of the medical profession—Dr. Thomas Gowans, ophthalmic surgeon to the Ingham Infirmary, and Surgeon Commander Francis J. Gowans, R.N. The funeral took place on November 17th, and was attended by several members of the bench and the medical profession, as well as by representatives of institutions with which Dr. Gowans had been connected.

We regret to record the death on November 21st, at the age of 63, of Dr. ARTHUR JALLAND STILES, of Spalding, Lincolnshire. He had been for some time in ill health, and his death, though sudden, was not altogether unexpected. The family of Stiles has long been connected with the Spalding district. Dr. Thomas Stiles practised for many years in the village of Pinchbeck, two miles from Spalding, and lived there to the age of 97. He was succeeded by his son, Dr. Henry Tourney Stiles; he was a widely known and respected medical practitioner, and was the father of Dr. A. J. Stiles and of Sir Harold Stiles, Regius Professor of Clinical Surgery in the University of Edinburgh. Dr. Arthur Stiles received the early part of his medical education at University College, London; afterwards he entered at the University of Edinburgh, took the degrees of M.B., C.M., with distinction in 1883, and the M.D. with commendation in 1886. After graduating he joined his father at Spalding and, when Dr. Henry Stiles died at the age of 83, remained at the old home, taking a partner and continuing to practise for five years. He then retired, but retained his interest in the affairs of the district with which his family was so long identified. He was J.P. for Holland, a member of the Holland Standing Joint Committee, a governor of the Spalding Grammar School and the Spalding High School for Girls, a trustee of the Spalding Johnson Hospital, and a member of the Spalding Town Husbands, having the administration of the principal charities of the town. He was at one time chairman of the Divisional Liberal Association and at the time of his death was a vice-president. He was a considerable owner of property in the town and district, and a keen horticulturist. At one time he took a keen interest in growing bulbs for the market; he afterwards gave this up but still made his garden his hobby. The funeral, which took place on November 25th at Pinchbeck, where four generations of Stiles rest, was of a semi-public nature. It was attended by a large gathering, including many leading residents and his brother, Sir Harold Stiles.

Dr. ARTHUR WILLIAM HARE died from pneumonia at Gateshead on November 22nd, aged 62. He was the son of the late Samuel Hare of Darlington, and received his early education at Oliver's Mount School, Scarborough. After a very distinguished student career at the University of Edinburgh, he graduated M.B., C.M. with honours in 1882, and in 1886 he took the diplomas of M.R.C.S.Eng. and F.R.C.S.Edin. He became resident surgeon at the Edinburgh Royal Infirmary and assistant at the University under the late Professor Chiene. He continued his studies at Leipzig, Berlin, and Vienna, and in 1888, at the early age of 26, was appointed professor of systematic and operative surgery at Owens College, Manchester, and surgeon to Ancoats Hospital; but owing to a breakdown in his health he had to resign those posts five years later. On returning from travels in America, Hare settled at Newquay, Cornwall, and practised there for more than fifteen years. On the outbreak of war in 1914 he offered his services to the War Office and, receiving a temporary commission as lieutenant in the R.A.M.C., was stationed at Devonport. For the past seven years he had been assistant medical officer of health and school medical officer for Gateshead. Though handicapped always by indifferent health, he had been able to carry on his work until within a few weeks of his death. During the early and brilliant part of his professional career, Hare wrote frequently on surgical, anatomical, and pathological subjects. While at Edinburgh he collaborated with Sir G. Sims Woodhead in a work on *Pathological Mycology*, and he made a number of contributions on cranial surgery to encyclopaedias and medical journals. He leaves a widow and three daughters.

Mr. G. T. BROOKSBANK JAMES, who died of cancer on November 15th at the age of 56, gained the entrance scholarship at the Westminster Hospital Medical School, and subsequently acted as house-surgeon there, and as clinical assistant at the Westminster Ophthalmic Hospital. He became a Fellow of the Royal College of Surgeons in 1896, and later ophthalmic surgeon to the Westminster Hospital, and to the Royal Eye Hospital, Southwark. In addition to his London practice, he developed a further considerable one at Eastbourne, where he was ophthalmic surgeon to the Princess Alice Memorial Hospital. James was a well read man and a good conversationalist with wide and varied interests. His fitness for the work of an ophthalmic surgeon was exhibited in his patient dealing with cases of refractive error and in the skill he showed when operating for chronic glaucoma. He was always prepared to enter upon a discussion over minute details concerning the establishment of a filtration which would persist. That he was well acquainted with the literature of his special subject is shown by the fact that the Section of Ophthalmology appointed him the representative on the Library Committee of the Royal Society of Medicine.

Dr. FRANCOIS HELME, a well known contributor to the *Presse médicale* of articles concerned with the welfare of the medical profession, has recently died.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following candidates have been approved at the examination indicated:

D.P.H.—*Part I:* J. G. Johnstone, A. A. E. Newth, H. Shannon, A. C. Tibbits. *Part II:* W. H. Butcher, H. W. Hardy, A. A. E. Newth, H. Shannon, A. C. Tibbits.

LONDON INTER-COLLEGIATE SCHOLARSHIPS BOARD.

ELEVEN medical entrance scholarships and exhibitions of an aggregate total value of £1,134, tenable in the Faculty of Medical Sciences of University College and King's College, and in the Medical Schools of King's College Hospital, University College Hospital, the London Hospital, and the London (Royal Free Hospital) School of Medicine for Women, will be offered. The examinations will commence on April 28th and June 24th, 1924. Full particulars and entry forms may be obtained from the Secretary of the Board, S. C. Ranner, M.A., the Medical School, King's College Hospital, Denmark Hill, London, S.E.5.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—J. B. Couche, J. E. Elam, S. Halperin, J. B. Sweet, S. Thompson.
MEDICINE.—J. E. Elam, E. J. R. MacMahon, W. McLaren, D. Parsons, L. Ratnigrosch.
FORENSIC MEDICINE.—J. E. Elam, D. Parsons.
MIDWIFERY.—P. V. Casling, E. J. Creais, J. E. Elam, E. J. R. MacMahon, W. McLaren, I. Morgan, D. Parsons, F. R. Ratnagar, M. A. E. Somers, J. B. Sweet, E. W. Warne.

The diploma of the Society has been granted to Messrs. J. E. Elam, S. Halperin, D. Parsons, M. A. E. Somers, and S. Thompson.

The Services.

AWARD OF C.B.

THE King has appointed Surgeon Commander William Perceval Hingston, R.N., to be a Companion of the Order of the Bath (Military Division), "in recognition of the gallant conduct displayed and the valuable services rendered on the occasion in September last of the destruction by earthquake and fire of the R.N. Sick Quarters, Yokohama, when by his gallantry and presence of mind he was the direct means of saving the lives of the large number of refugees who sought escape from the fire in the hospital grounds."

DEATHS IN THE SERVICES.

Inspector-General Thomas Lyle Horner, R.N. (retired), died at Plymouth last month. After taking the L.R.C.P. and S.Edin. in 1868, he entered the navy as surgeon, attained the rank of deputy inspector-general on March 9th, 1898, and retired, with an honorary step as inspector-general, on October 1st, 1903. He was medical officer of the old battleship *Dreadnought* when King George was serving on her as lieutenant and Prince Louis of Battenberg was her commander.

Surgeon Major Alfred Lewer, R.A.M.C. (retired), died in London on September 29th, aged 86. He was born at Wimborne, Dorset, educated at King's College, London, and took the M.R.C.S. in 1858, the L.S.A. in 1859, and the L.R.C.P.Edin. in 1860. Entering the army as assistant surgeon in 1859, he served in the Royal Artillery till the regimental system was abolished, became surgeon major on January 21st, 1874, and retired on May 23rd, 1891.

Medical News.

THE following have been appointed Knights of Grace of the Order of the Hospital of St. John of Jerusalem in England: Lieut.-Colonel Gerald Hamilton Goddard, D.S.O., R.A.M.C., Dr. Hugh Falconer Oldham, M.B.E., and Lieut.-Colonel William Booth Skinner, D.S.O., S.A.M.C.

AT the annual meeting of the Scottish Women's Hospital Association of the Royal Free Hospital on December 1st it was announced that the Duchess of York had accepted the presidency of the Association. As a war memorial of the Scottish Women's Hospital it has been decided to endow four beds in the Royal Free Hospital, and the endowment plate for the first of these, to be called the British Macedonian Expeditionary Fund Bed, was formally presented by General Sir George Milne and accepted by Mr. Langton on behalf of the hospital.

THE fourth medical salon will be held in Paris from March 2nd to 9th, and, like the three previous salons, the first of which was held in 1909 and the last in 1912, will contain pictures, sculpture, engravings, etc., which are the work of medical men and pharmacists. Further information can be obtained from the founder and general secretary, Dr. Paul Rabier, 84, Rue Lecourbe, Paris, XV.

SIR HUMPHRY ROLLESTON, K.C.B., M.D., has accepted the chairmanship of the Propaganda Committee of the National Association for the Prevention of Tuberculosis.

SIR THOMAS BARLOW, Bt., who has been elected president of the National Temperance League—the first medical man to occupy that position—attended a meeting of members and associated workers last week, when speeches of welcome and congratulation were delivered by, among others, Mr. McAdam Eccles, Mr. Arthur Evans, and Dr. Basil Price, C.M.G. Sir Thomas Barlow gave an address, in the course of which he dealt with Professor Starling's recent book *The Action of Alcohol on Man*. It departed, he said, from impartial presentation, by the general implications it contained in favour of the ordinary use of alcohol on grounds other than scientific.

AT a meeting of the West Kent Medico-Chirurgical Society to be held at the Miller General Hospital, Greenwich, on Friday, December 14th, at 8.45 p.m., the Purvis oration will be delivered by Sir Thomas Horder. The subject selected is carcinomatosis.

THE autumn dinner of the Irish Medical Schools' and Graduates' Association was held at Pagani's Restaurant on November 27th. Sir William Taylor presided, the guest of the evening being Surgeon Vice-Admiral Joseph Chambers, C.M.G., Medical Director-General R.N. The members of the association and their friends—over a hundred all told—spent a pleasant evening, enjoyed a good dinner, listened to some excellent speeches and to some delightful Irish songs. It is to be hoped that an even larger number will meet at dinner on next St. Patrick's Day.

A COURSE of post-graduate lectures will be delivered at the Cancer Hospital (Free), Fulham Road, S.W.3, weekly during January, February, and March, 1924, dealing with various aspects of cancer. Medical practitioners and students may attend without tickets. The syllabus of the lectures will be published in due course.

DR. HAROLD SCURFIELD will give his presidential address to the Maternity and Child Welfare Group of the Society of Medical Officers of Health on Friday next, December 14th. The address, which will be on the lines of advance in maternity and child welfare work, will be delivered at the house of the Society, 1, Upper Montague Street, Russell Square, W., at 5 p.m. Members of the profession interested in the subject are invited to attend.

PASTEUR day in Paris, when collections were made for the better equipment of laboratories in France, yielded, it is stated, 13 million francs.

TWO lectures on graphic methods in heart disease will be delivered by Dr. John Parkinson in the Anatomical Theatre of the London Hospital Medical College on December 17th and 19th, at 4.30 p.m. The lectures, which will be illustrated by lantern slides, are intended for senior students of the hospital and post-graduates, to whom a cordial invitation is given.

THE annual report for 1922-23 of the Livingstone College, Leyton, bears witness to the benefit derived from instruction in medical matters as part of the general missionary training. During the last thirty-one years 752 students have received the full training of the college; of these 482 remain at work mainly in districts of Africa, India, and China, where the invaliding and death rates are higher than in any other missionary field. Not only are those so trained enabled themselves better to withstand the dangers of disease but they are able to train others to help in such work as the preventive and curative treatment of leprosy and other diseases. This latter point was emphasized at the College Commemoration Day on June 13th by Sir Leonard Rogers, C.I.E., F.R.S., who spoke very highly of the value of the training supplied by the institution. Additional testimony was given on this occasion by old students of the college who had been working in South India and Nigeria, and in the annual report there are letters from missionaries in Rhodesia, Bechuanaland, and Nigeria expressing similar appreciation of the medical training they had received.

PROFESSOR BIEDL of Prague recently delivered the first Harvey lecture in New York, his subject being organotherapy.

THE Nobel Prize for Chemistry has been awarded to Dr. Fritz Pregl of the medical faculty of Graz.

PROFESSOR BARD, who left Lyons to occupy the chair of clinical medicine at Geneva in 1900 and was nominated professor of clinical medicine at Strasbourg at the end of the war, has returned to Lyons to succeed Professor Teissier. He is succeeded at Strasbourg by Dr. Prosper Merklen.

DURING the recent earthquake in Japan the houses and all the property of eight professors of medicine were destroyed, but none was killed. The Tokyo University library was completely destroyed by fire during the earthquake.

PROFESSOR LEVADITI'S Harben Lectures, announced in our last issue (p. 1071), will be delivered in English on December 11th, 12th, and 13th, at 5 p.m., at 37, Russell Square, W.C.1. All interested are invited to attend.

THE late Dr. Margaret Lucy Augusta Boileau of Wymondham, who left net personalty of £16,183, has bequeathed £200 to the Norfolk and Norwich Staff of Nurses, Ltd., and £100 each to the Norfolk and Norwich Hospital, the Royal Free Hospital, Gray's Inn Road, and the Elizabeth Garrett Anderson Hospital, Euston Road.

DR. KONSTANTIN VON MONAKOW, professor of neurology in the University of Zürich and the author of numerous works on the normal and morbid anatomy of the brain and spinal cord, has recently celebrated his seventieth birthday.

A MONUMENT to the late Professor Monprofit, the well known surgeon of Angiers, was recently unveiled there by Professor Hartmann of Paris.

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

IN order to avoid delay, it is particularly requested that *ALL* letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology Westrand, London*; telephone, 2630, Gerrard.
2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westrand, London;* telephone, 2630, Gerrard.
3. MEDICAL SECRETARY, *Mediocre Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh*; telephone, 4361, Central).

QUERIES AND ANSWERS.

DANGEROUS DRUGS ACT.

"SENEX" asks if his local pharmacist is right in refusing to supply him with opium for domestic use on the ground that he is retired from active practice. "I was under the impression," he adds, "that the final revision of the Regulations under the Act withdrew this very invidious provision largely through the efforts of the BRITISH MEDICAL JOURNAL."

*** The pharmacist is wrong. He cannot refuse to supply opium to a registered medical practitioner "on the ground that he is retired from active practice." The amending bill to the Dangerous Drugs Act, 1920, sought to impose a restriction on the sale of dangerous drugs to registered medical practitioners "not in actual practice," but on strong representations by the British Medical Association and JOURNAL the words "in actual practice" were removed from the bill by an amendment moved by the Home Secretary. The pharmacist should be referred by our correspondent to Clause 3 of the Dangerous Drugs and Poisons (Amendment) Act, 1923.

INCOME TAX.

Motor Car Renewal.

"W. G." bought a 13.9-h.p. "D" car for £310 and subsequently sold it for £250, buying a 18.2-h.p. "O" car for £505. He has now sold the latter for £70, buying a 16-h.p. "B" car for £500.

*** Our correspondent is entitled to an allowance of £430. The fact that he had an allowance for the "O" car does not affect the allowance due on his second renewal. The case referred to by "W. G." was complicated by the fact that the sale of the old car and the purchase of a new one were independent and not simultaneous transactions.

LETTERS, NOTES, ETC.

CLOTHES MOTHS.

OUR grandmothers had a very confident belief in the efficacy of camphor to repel clothes moths and to preserve their furs and woollen garments, but recently its rather agreeable perfume has given way to the pungent smell of naphthalene. But doubt has now been cast on the efficacy of both. Mr. Reginald J. Johnston has recently recalled in the pages of *Nature* the opinion of the famous French naturalist, Fabre, that neither had any effect upon moths, and has declared that these insects are utterly indifferent to such odoriferous substances. In an editorial note our contemporary stated that there was no real foundation for the popular belief in the efficacy of camphor, but that naphthalene was satisfactory as a repellent if placed inside clothing which is afforded the additional protection of a wrapping of stout paper, the edges of which freely overlap and are tightly secured by pins. Housekeepers have noticed in recent years that moths now attack cotton fabrics. The explanation of this last observation seems to be that there are nowadays at least three species of these moths in this country, and that the larva of one of them likes cotton. Mr. F. J. Stubbs, of the Oldham Corporation Museum, while admitting that at one time the chief pests were moths belonging to the genus Tines, which are animal feeders, attacking furs, feathers, wool, silk, etc., states that about 1840 a new moth was introduced, *Oecophora* (or *Endompsia*) *pseudospretella*, which eats both animal and vegetable substances. It is, he says, a disastrous guest of neglected herbaria, preying indifferently on the dried plants or on the paper. It is also, he says, known to be a lover of cool climates and to prefer slightly damp surroundings, which may account for it being extremely abundant in London. It appears to be almost as omnivorous as old Father William, for it devoured a stuffed wheatear which had been put away in a dark and rather damp cupboard. The skin had gone, and even the horny rhamnotheca of the beak and the scales of the feet had been eaten. The same correspondent asserts that he has seen Oecophora larvae feeding on a Chinese "joss-stick," which is a compound of resins, and has found one in an excavation in a "vegetable ivory" nut. The larva—which is, of course, the stage in which the insect does the damage—is very difficult to kill; fumigation with hydrocyanic acid has no effect on it, chloroform vapour cripples it for a few days only, and if dropped into a strong solution of naphthalene and then dried until it is thickly encased with a crystal coat it may be able to crawl about when the naphthalene is sufficiently evaporated to give freedom of action to the segments. Carbon bisulphide was found to kill the larvae, and naphthalene scattered in museum cases keeps the moths away to some extent. Another correspondent of *Nature*, Mr. James Ritchie, of the Royal Scottish Museum, Edinburgh, gives references to work for the U.S. Department of Agriculture, which led to the conclusion that naphthalene in good condition is "one of the safest and best materials for protecting fabrics against moth injury." It must, however, be used in moderately tight receptacles so that the fabrics remain in a naphthalene permeated atmosphere. Mr. Ritchie adds that camphor used in the same way is said to be almost as effective, its fumes killing all stages of clothes moths.

A CORRECTION.

SIR ROBERT ARMSTRONG-JONES writes: I cannot usually complain of lay press misinterpretations of lectures on medical subjects which my position as Gresham Professor of Physic makes it necessary for me periodically to bring before the public, but in a lecture delivered before the National Union of Teachers upon "Fatigue and Sleep" I am reported to have said that I had discovered a vaccine which I was using to combat fatigue. This, of course, is wholly inaccurate and has caused me much annoyance. I read my lecture from a carefully prepared manuscript. I referred to the work of Drs. Myers, Stanley Kent, and Vernon, as also to that of Mosso, Crile, Cannon, and others, and to the experiments of Miss May Smith. I pointed out that fatigue was probably due to the accumulation of intra- and extra-neuronic toxins, but that the body had the power to form antibodies or antitoxins to combat these, and if ever their nature could be ascertained a vaccine might not impossibly be prepared to antagonize the feelings associated with fatigue.

DR. GRAHAM GRANT wishes to thank the many correspondents who have written to him about intestinal antiseptics.

THE *Simplex Investors' Pocket Diary*, now in its tenth year of issue, is published by the proprietors of the *Financial Review of Reviews* in conjunction with Messrs. Charles Letts and Company. The 1924 edition includes special features which should prove useful to investors for reference. The diary has a back loop and pencil and is fitted with a self-opening memo tablet and leather pockets for stamps, cards, etc. The sale price is 3s. 6d.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 51, 54, and 55 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 52 and 53.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 267.